Arctic Ocean Assemblage Survey of Hecate Strait, May 28–June 17, 1984

J. Fargo, A. V. Tyler, J. Cooper,
S. C. Shields and S. Stebbins

Department of Fisheries and Oceans
Fisheries Research Branch
Pacific Biological Station
Nanaimo, British Columbia V9R 5K6

December 1984

Canadian Data Report of Fisheries and Aquatic Sciences No. 491

85-3394/

Canadian Data Report of Fisheries and Aquatic Sciences

Data reports provide a medium for filing and archiving data compilations where little or no analysis is included. Such compilations commonly will have been prepared in support of other journal publications or reports. The subject matter of data reports reflects the broad interests and policies of the Department of Fisheries and Oceans, namely, fisheries and aquatic sciences.

Data reports are not intended for general distribution and the contents must not be referred to in other publications without prior written authorization from the issuing establishment. The correct citation appears above the abstract of each report. Data reports are abstracted in *Aquatic Sciences and Fisheries Abstracts* and indexed in the Department's annual index to scientific and technical publications.

Numbers 1–25 in this series were issued as Fisheries and Marine Service Data Records. Numbers 26–160 were issued as Department of Fisheries and the Environment, Fisheries and Marine Service Data Reports. The current series name was introduced with the publication of report number 161.

Data reports are produced regionally but are numbered nationally. Requests for individual reports will be filled by the issuing establishment listed on the front cover and title page. Out-of-stock reports will be supplied for a fee by commercial agents.

Rapport statistique canadien des sciences halieutiques et aquatiques

Les rapports statistiques servent à classer et à archiver les compilations de données pour lesquelles il y a peu ou point d'analyse. Ces compilations auront d'ordinaire été préparées à l'appui d'autres publications ou rapports. Les sujets des rapports statistiques reflètent la vaste gamme des intérêts et des politiques du ministère des Pêches et des Océans, c'est-à-dire les sciences halieutiques et aquatiques.

Les rapports statistiques ne sont pas destinés à une vaste distribution et leur contenu ne doit pas être mentionné dans une publication sans autorisation écrite préalable de l'établissement auteur. Le titre exact paraît au-dessus du résumé de chaque rapport. Les rapports statistiques sont résumés dans la revue *Résumés des sciences aquatiques et halieutiques*, et ils sont classés dans l'index annuel des publications scientifiques et techniques du Ministère.

Les numéros 1 à 25 de cette série ont été publiés à titre de relevés statistiques, Services des pêches et de la mer. Les numéros 26 à 160 ont été publiés à titre de rapports statistiques du Service des pêches et de la mer, ministère des Pêches et de l'Environnement. Le nom actuel de la série a été établi lors de la parution du numéro 161.

Les rapports statistiques sont produits à l'échelon régional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur dont le nom figure sur la couverture et la page du titre. Les rapports épuisés seront fournis contre rétribution par des agents commerciaux.

Canadian Data Report of
Fisheries and Aquatic Sciences No. 491

December 1984

ARCTIC OCEAN ASSEMBLAGE SURVEY OF HECATE STRAIT, MAY 28-JUNE 17, 1984

by

J. Fargo, A. V. Tyler, J. Cooper,
S. C. Shields, and S. Stebbins

Department of Fisheries and Oceans
Fisheries Research Branch
Pacific Biological Station
Nanaimo, British Columbia V9R 5K6

(c) Minister of Supply and Services Canada 1984

Cat. No. Fs 97-13/491E ISSN 0706-6465

Correct citation for this publication:

Fargo, J., A. V. Tyler, J. Cooper, S. C. Shields, and S. Stebbins. 1984. ARCTIC OCEAN assemblage survey of Hecate Strait, May 28-June 17, 1984. Can. Data Rep. Fish. Aquat. Sci. 491: 108 p.

ABSTRACT

Fargo, J., A. V. Tyler, J. Cooper, S. C. Shields, and S. Stebbins. 1984. ARCTIC OCEAN assemblage survey of Hecate Strait, May 28-June 17, 1984. Can. Data Rep. Fish. Aquat. Sci. 491: 108 p.

During May-June 1984, the F/V ARCTIC OCEAN completed its share of a two-vessel synoptic trawl survey of groundfish species occupying the shelf area (10-79 fath; 18-44 m) of Hecate Strait. Purpose of the survey was to collect information on species assemblages, as a first step towards development of an ecological basis for mixed-species stock assessment. This report contains the results of the survey--weight and number caught and length-frequencies, by haul (82 usable).

Key words: groundfish species assemblages, survey, mixed-species stock assessment, Hecate Strait

RÉSUMÉ

Fargo, J., A. V. Tyler, J. Cooper, S. C. Shields, and S. Stebbins. 1984. ARCTIC OCEAN assemblage survey of Hecate Strait, May 28-June 17, 1984. Can. Data Rep. Fish. Aquat. Sci. 491: 108 p.

En mai et juin 1984, l'équipage du ARCTIC OCEAN a complété sa part d'un levé synoptique des espèces démersales peuplant la plate-forme (10-79 brasses; 18-144 m) du détroit d'Hécate, levé effectué par deux chalutiers. L'étude visait la collecte de données sur l'assemblage des espèces, comme première étape vers l'élaboration d'une base écologique pour l'évaluation de stocks polyspécifiques. Le présent rapport contient les résultats du levé: poids, nombre capturé et fréquence des longueurs par trait (82 traits utilisables).

Mots-clés: assemblage des espèces démersales, levé, évaluation de stocks polyspécifiques, détroit d'Hécate

INTRODUCTION

This work was carried out as part of the Hecate Strait Project to develop an ecological basis for alternative, mixed-species, assessment techniques. The cruise was coordinated with that of the R/V G.B. REED during the same time period. The purpose of the two-vessel operation was to provide synoptic survey data that would lend itself to a mapping of fish assemblages available to otter trawls working the sea bottom. The maps are meant to display the changes in relative abundance of species throughout Hecate Strait. The strategy is based on the observation that the mix of species changes in different parts of any given region of continental shelf. Conversely, there are usually strong similarities in the species compositions among some sites. These fairly homogeneous groupings are sometimes termed "assemblages". The systematic classification of similar and dissimilar sites, and the subsequent mapping of the resulting species composition patterns has been carried out for many years by plant ecologists as well as workers studying benthic infauna. During the last 15 years applications have been made to the distributions of marine fishes. The data reported here provide the basis for the first application of the techniques to research surveys of fishes on Canada's Pacific Coast.

This report contains the results of the ARCTIC OCEAN cruise. A second Data Report contains the results of the G.B. REED cruise.

MATERIALS AND METHODS

FISHING VESSEL

The F/V ARCTIC OCEAN, a 21 m (69 ft) steel-hulled stern trawler, was the vessel chartered for the survey.

FISHING GEAR

Fishing gear consisted of a Yankee 36 trawl net (Fig. 1) connected to the vessel's 1600 lb (727 kg) steel doors by 30 fath sweep lines. The groundline consisted of 7 inch rubber discs on 5/8 x 6 x 19 steel cable, and was suspended from the fishing line by 6 links of 1 inch chain beckets at intervals of 61 cm (24 in).

Ten consecutive meshes were measured (internal) from each section of the trawl, after haul 89. Mean interval measurements (mm) were as follows:

Section	Internal measure (mm)
Rt. wing	125
Body	125
Intermediate #1	79
Intermediate #2	66
Codend	25

Location of meshes to be measured was selected, arbitrarily, away from any seams or rib lines.

SURVEY DESIGN

The two vessels operated within the constraints of a single survey design. Three factors had to be accounted for in laying out the design.

1. Since it is known that assemblages change with depth, it was necessary to have stations more densely packed in areas with more variation in depth.

2. Within areas of similar depth stations had to be spaced more or less evenly, since it is known that when stations are moderately clumped within an area of homogeneous assemblage, those stations will tend to be identified together as a new assemblage by the statistical cluster techniques. For this reason strictly random placement of stations is not completely suitable for the objective of this survey. Random placement usually leads to some stations being somewhat grouped.

3. To ensure complete coverage of the region, it was necessary to adopt a systematic sampling approach in part.

To take account of factors 2 and 3 a grid of 10 nautical miles was superimposed on a navigation chart of Hecate Strait to guide placement of the stations (Fig. 1). To account for the depth factor, each 10-nautical-mile block of the grid was divided into strata of 10 fathom (18 m) intervals. The stratification was based on fathoms rather than meters because navigation charts and echo sounders in common use at the time were not metric. We thus defined a stratum as a 10-fath depth interval within a grid block. The shallowest depth interval was 10 to 19 fathoms (18-35 m), and the deepest was 70 to 79 fathoms (128-144 m). Blocks were labelled A to L from north to south, and 1 to 5, west to east. Depth strata were numbered 1 to 7 (10-19 fath to 70-79 fath). Thus a trawling station at 25 fath in the most northwesterly block would be identified as A1-2. By this arrangement 136 stations (block-strata) were defined. To sample these stations, one haul was

planned within each. Because two vessels were involved in the survey, it was considered desirable that some strata were occupied by both vessels to facilitate a comparison of the assemblage maps produced from the data of each. The more shallow areas were assigned to the F/V ARCTIC OCEAN, and the deeper strata were given to the G.B. REED. Consistent with this plan the strata that both vessels occupied were at the intermediate depths.

To facilitate further the comparison between vessels, three simultaneous, side-by-side hauls were scheduled for a time during the study mutually convenient to the two vessels.

While the number of stations and hauls per stratum was determined well in advance of the cruise, the selection of the specific location of each station within a stratum was made by the vessel captain, who searched the stratum for trawlable bottom and decided whether a set could be made. Only 5 stations could not be occupied due to untrawlable bottom. Location of the station positions actually occupied is given in Figure 1.

CATCH PROCESSING

Each trawl catch was segregated by species into plastic containers (ca. 50 kg capacity), hereafter referred to as "tubs". Weight of each species was obtained with an electronic load cell to the nearest lb. The total weight for each species caught was equal to the sum of the sorted tub weights for the species in the catch.

LENGTH FREQUENCIES

Fork length was recorded to the nearest centimeter for most of the specimens caught, except spiny dogfish which were measured total length, with the tail bent down in line with the body. To expedite measuring and recording fork lengths of moderate to large catches, the plastic-strip method (Davenport and Harling 1965) was employed. For most dogfish, sex was also recorded based on external characteristics. Exceptions to measuring all specimens caught involved (a) large catches of individual species and (b) ratfish.

For "large" catches (ca.$\geq$300 specimens) of individual species, sampling schemes were employed to reduce catch-processing time. Most schemes followed, or were modifications of, that reported by Westrheim (1967). For example, in haul 9, the total catch of ratfish was 462 kg, but only 269 kg were sampled for length frequencies. The sample consisted of all ratfish in the first two, middle two, and last two full tubs. Estimated number caught was 512=(298)(462)/269.

For ratfish, broken tails were fairly common. "Fork" length was estimated and recorded to the nearest centimeter interval, for these specimens.

RESULTS

A total of 89 trawl hauls were completed, of which 82 were deemed "usable" (Fig. 2). The seven "unusable" hauls were disqualified due to snags (6), and mixed depth strata (1) (Table 1).

Total fish catch from usable hauls was 13,352 kg (25,442 specimens) comprising at least 44 species (Table 2). Principal species by weight were spiny dogfish, English sole, arrowtooth flounder, and Pacific halibut--55% of the total catch. Principal species by number were English sole, rex sole, and sablefish--55% of the total numbers caught.

Detailed records of all trawl hauls, and catch weights by species, are contained in Appendix Table 1. An index to common and scientific names of all fish species caught is contained in Appendix Table 2.

TRAWLING SCHEME

The F/V ARCTIC OCEAN was assigned 94 of the trawling stations from A3-3 to L4-6 (Fig. 1; Table 3). Five stations were rejected, two stations were reassigned to the G.B. REED, and two stations were successfully replicated (Table 4).

Three stations were occupied simultaneously by the two trawlers--J4-4, I4-5, and I5-6. ARCTIC OCEAN hauls were 64, 65, and 66, respectively.

LENGTH FREQUENCIES

Fork (or total) lengths (cm) were recorded for 21,789 specimens (est. 25,442 caught). In 90% of the hauls, all specimens caught were measured. Catch-sampling occurred for one or two species in 8 hauls, and computations of total numbers caught are shown in Table 5, together with method of sampling.

In several instances species were sorted and weighed, but not measured or counted. Table 6 lists estimates of the total number of such species caught. These estimates were derived using the following equation:

$n = \frac{Nw}{W}$ where, n=number of given species weighed but not measured.
N=number of a given species measured for the survey.

w=weight of a given species not measured.
W=weight of a given species measured for the survey.

Table 2 contains an index to Appendix tables containing length-frequency (or individual length) records, by haul, for each species, as well as a record of the weights (kg) and numbers of individual species caught for usable hauls on the cruise.

PERSONNEL

J. Fargo (i/c)	Pacific Biological Station	May 28-June 17
J. Cooper	"	"
S. Stebbins	"	"

ACKNOWLEDGMENTS

We gratefully acknowledge the assistance of Captain Ron Gorman and crewmen Gerald Crewe, John Fitzpatrick, and Skip March. Their cooperation and assistance aboard the F/V ARCTIC OCEAN was essential to the completion of this project.

REFERENCES

Davenport, D. and W. R. Harling. 1965. Method of rapid measurement for large samples of fish. J. Fish. Res. Board Can. 22: 1309-1310.

Westrheim, S. J. 1967. Sampling research trawl catches at sea. J. Fish. Res. Board Can. 24: 1187-1202.

Table 1. Unusable trawls, by location and cause, of the F/V ARCTIC OCEAN assemblage survey, May 28-June 17, 1984.

Haul no.	Block-strata	Cause
21	D2-1	Net torn
28	D4-2	Snag
34	F4-3	Fouled gear
38	F3-3	Mixed depth strata
59	I4-3	Snag
73	K3-2	Snag
74	K3-2	Snag

Table 2. Total weight(kg) and numbers, by species, of fish specimens caught in usable hauls during F/V ARCTIC OCEAN assemblage survey, May 28-June 17, 1984. (See appropriate Appendix tables for length frequencies).

Flatfish	Weight (kg)	Numbers	Appendix table
Arrowtooth flounder	1480	1486	3
Butter sole	152	429	4
Curlfin sole	21	35	18
Dover sole	143	328	5
English sole	2015	8378	6
Flathead sole	59	372	7
Halibut	1417	325	19
Pacific sanddab	222	1860	8
Petrale sole	57	52	18
Rex sole	497	3482	9
Rock sole	596	1231	10
Sand sole	33	46	18
Starry flounder	24	18	18
Sub-total	6716	18,042	
Rockfish			
S. aiutus	19	144	11
S. babcocki	3	1	20
S. brevispinis	118	69	20
S. entomelas	Tr	1	20
S. flavidus	39	29	20
S. maliger	26	25	20
S. paucispinis	257	60	20
S. pinniger	25	19	20
S. wilsoni	8	160	12
Sub-total	495	508	

Other Roundfish	Weight (kg)	Numbers	Appendix table
Lingcod	356	74	21
Pacific cod	978	1755	13
Sablefish	556	2213	14
Walleye pollock	354	1021	15
Chinook salmon	2	1	22
Eelpout	Tr	6	22
Greenling	Tr	1	22
Pacific hake	Tr	2	22
Pacific herring	6	77	23
Poacher	Tr	16	22
Sandlance	Tr	65	22
Sculpin	8	4	22
Shiner perch	Tr	1	22
Smelt	2	55	22
Tomcod	17	244	16
Wolfeel	12	2	22
Sub-total	2291	5537	
Selachii			
Ratfish	721	1126	17
Skates	4	1	24
big	637	67	24
black	2	1	-
longnose	28	4	24
Spiny dogfish	2458	1046	25
Sub-total	3850	1345	
Grand totals	13,352	25,442	
Invertebrates	65	-	

Table 3. Inventory of scheduled trawl hauls by the F/V ARCTIC OCEAN (A) and R/V G.B. REED (R), by block and depth strata, in Hecate Strait, May-June, 1984.

Block	Depth Strata[a]							Scheduled Hauls		Total
	1	2	3	4	5	6	7	A	R	
A - 2	-	-	-	-	R	R	R	-	3	3
- 3	-	-	A	A/R	R	R	R	2	4	6
B - 1	A	A	A	A	A/R	R	R	5	3	8
- 2	A	A	A	A	A/R	R	R	5	3	8
- 3	A	A	A	A/R	R	R	-	4	3	7
C - 2	A	-	-	-	-	-	-	1	-	1
- 3	A	A	A/R	R	R	-	-	3	3	6
D - 2	A	-	-	-	-	-	-	1	-	1
- 3	A	A	A/R	R	-	-	-	3	2	5
- 4	A	A	A/R	R	-	-	-	3	2	5
E - 2	A	A	-	-	-	-	-	2	-	2
- 3	A	A/R	R	-	-	-	-	2	2	4
- 4	-	A	A	A	A/R	R	R	4	3	7
- 5	-	A	A	R	R	R	-	2	3	5
F - 2	A	-	-	-	-	-	-	1	-	1
- 3	A	A	A	-	-	-	-	3	-	3
- 4	-	A	A	A	A/R	R	R	4	3	7
G - 1	A	-	-	-	-	-	-	1	-	1
- 2	A	-	-	-	-	-	-	1	-	1
- 3	A	A	A/R	R	R	-	-	3	3	6
- 4	-	-	-	A	A	A	A	4	-	4
H - 2	A	-	-	-	-	-	-	1	-	1
- 3	A	A/R	R	R	-	-	-	2	3	5
- 4	-	-	-	-	A	A/R	R	2	2	4
I - 2	A	-	-	-	-	-	-	1	-	1
- 3	A	A	A	-	-	-	-	3	-	3
- 4	A	A	A	A/R	R	R	R	4	4	8
- 5	-	-	-	A	A	A/R	R	3	2	5
J - 2	A	-	-	-	-	-	-	1	-	1
- 3	A	-	-	-	-	-	-	1	-	1
- 4	A	A	A	A/R	R	R	-	4	3	7
- 5	-	-	-	A	A	A/R	R	3	2	5
K - 3	A	A	A	A	A	-	-	5	-	5
- 4	-	A	A	A/R	R	R	-	3	3	6
- 5	-	-	-	-	-	R	R	-	2	2
L - 3	-	-	A	A	A	A	A	5	-	5
- 4	-	-	-	A	A	A/R	R	3	2	5
- 5	-	-	-	-	R	R	R	-	3	3
Total	24	21	24	26	25	23	15	95	63	158

[a] 1=10-19 fath; 2=20-29 fath; etc.

Table 4. Inventory of hauls, by block and depth strata, completed by the F/V ARCTIC OCEAN, May 28-June 17, 1984.

Scheduled Block-Strata	Haul	Scheduled Block-Strata	Haul	Scheduled Block-Strata	Haul
A3 - 3	4	E5 - 2	44	I5 - 4	61
- 4	5	- 3	43	- 5	60
				- 6	62,(66)[c]
B1 - 1	12	F2 - 1	41		
- 2	10			J2 - 1	UT
- 3	11	F3 - 1	40	(- 2)	(83)
- 4	13	- 2	37		
- 5	14	- 3	39	J3 - 1	82
B2 - 1	15	F4 - 2	UT	J4 - 1	71
- 2	16	- 3	35	- 2	70
- 3	3	- 4	36,88	- 3	69
- 4	1	- 5	GBR	(- 4)	(64)[c]
- 5	2				
		G1 - 1	UT	J5 - 4	68
B3 - 1	8			- 5	67
- 2	7	G2 - 1	UT	- 6	63
- 3	6				
- 4	9	G3 - 1	49	K3 - 1	72
		- 2	UT	- 2	SN
C2 - 1	17	- 3	48	- 3	UT
				- 4	UT
C3 - 1	18	G4 - 4	87	- 5	UT
- 2	19	- 5	45		
- 3	20	- 6	46	K4 - 2	81
		- 7	47	- 3	80
D2 - 1	SN[a]			- 4	79
		H2 - 1	42		
D3 - 1	UT[b]			L3 - 3	UT
- 2	22	H3 - 1	86	- 4	75
- 3	23	- 2	50	- 5	76
				- 6	77
D4 - 1	29			- 7	78
- 2	SN,89	H4 - 5	51		
- 3	30	- 6	52	L4 - 4	GBR/UT
				- 5	GBR/UT
E2 - 1	25	I2 - 1	54	- 6	GBR
- 2	24				
		I3 - 1	55		
E3 - 1	UT	- 2	56		
- 2	26	- 3	57		
E4 - 2	32	I4 - 1	58		
- 3	31	- 2	85		
- 4	27	- 3	84		
- 5	33	- 4	53		
		(- 5)	(65)[c]		

a SN=snag.
b UT=untrawlable.
c side by side trawling with R/V G.B. REED.

Table 5. Calculated numbers of specimens, by species, caught for hauls in which all specimens caught were not enumerated or measured during F/V ARCTIC OCEAN assemblage survey, May 28-June 17, 1984.

Haul no.	Species	Weight (kg)		Numbers		
		Total	Sample	Sample	Total	Sample
5	English sole	884	138	485	3107	1/1/1[a]
9	Ratfish	462	269	298	512	2/2/2[b]
14	Arrowtooth flounder	250	138	143	259	1/1/1
19	Pacific cod	275	114	516	1245	1/1/1
20	Sablefish	99	91	285	310	2 tubs
	English sole	53	50	545	578	1 tub
47	Arrowtooth flounder	392	157	149	372	1/1/1
65	English sole	60	49	219	268	1 tub
88	Sablefish	191	51	153	573	1 tub

[a] First, middle, last.
[b] First 2, middle 2, last 2.

Table 6. Estimated number of specimens caught and weighed, but not measured, by haul, during F/V ARCTIC OCEAN assemblage survey, May 28-June 17, 1984.

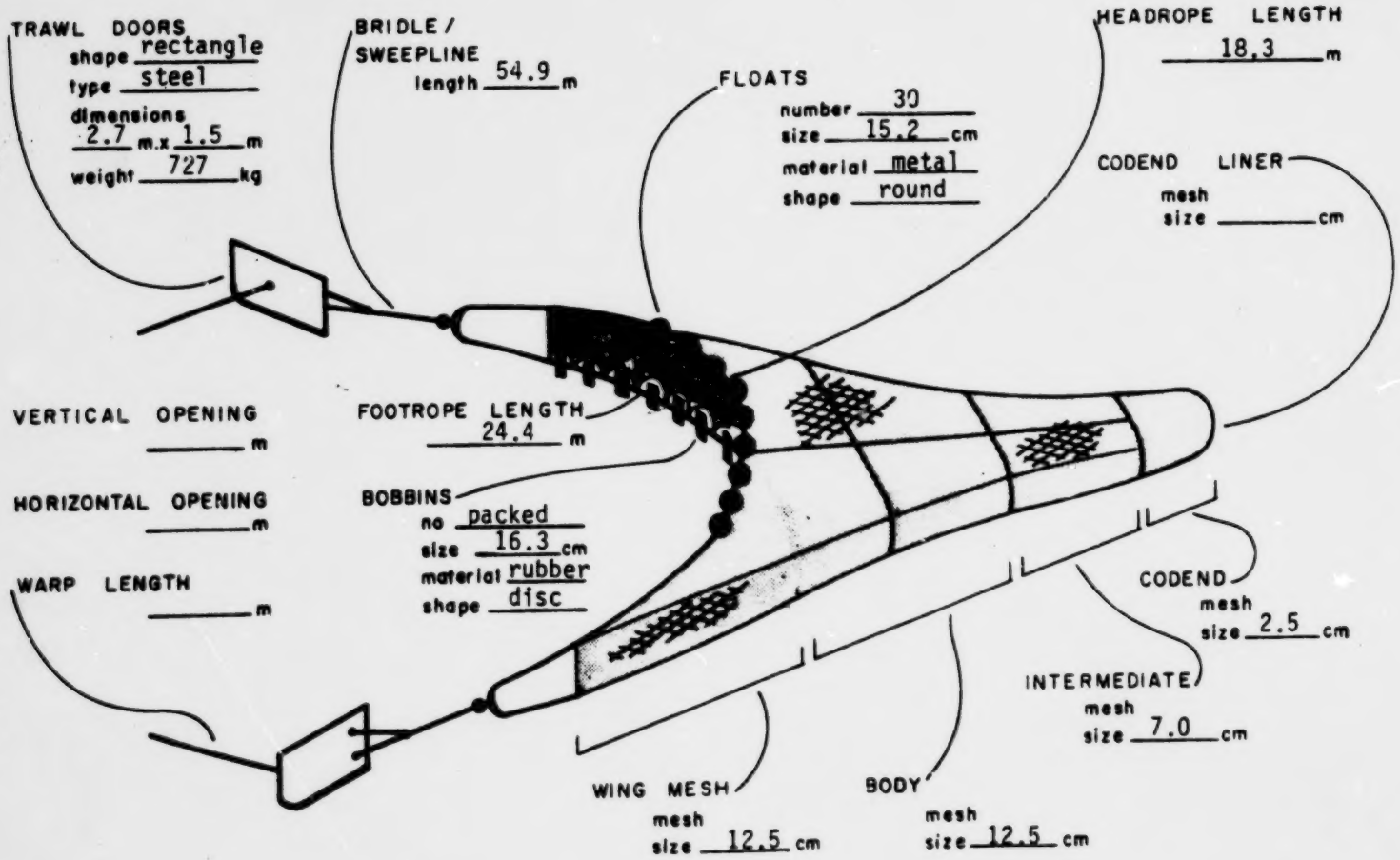
Haul No.	Species	Caught & measured[a] Weight (kg)	Caught & measured[a] No.	Caught only Weight (kg)	Caught only No.
2	Black skate			2	1[b]
	Butter sole	147	415	3	8
	Sablefish	551	2193	5	20
	S. pinniger	24	18	1	1
3	Arrowtooth flounder	1479	1485	1	1
	English sole	2011	8361	4	17
	Pacific cod	977	1753	1	2
	Walleye pollock	353	1018	1	3
9	Big skate	607	64	30	3
	Dover sole	142	326	1	2
	Rock sole	585	1208	11	23
19	Pacific sanddab	220	1843	2	17
	Sand sole	32	45	1	1
30	Rex sole	496	3475	1	7
40	Butter sole	147	415	2	6

[a] Total for cruise.
[b] Arbitrary estimate.

Fig. 1. NET DIMENSIONS AND CHARACTERISTICS FOR BOTTOM TRAWL

VESSEL F/V ARCTIC OCEAN NET Yankee 36

OBSERVATION PERIOD May 28-June 17, 1984



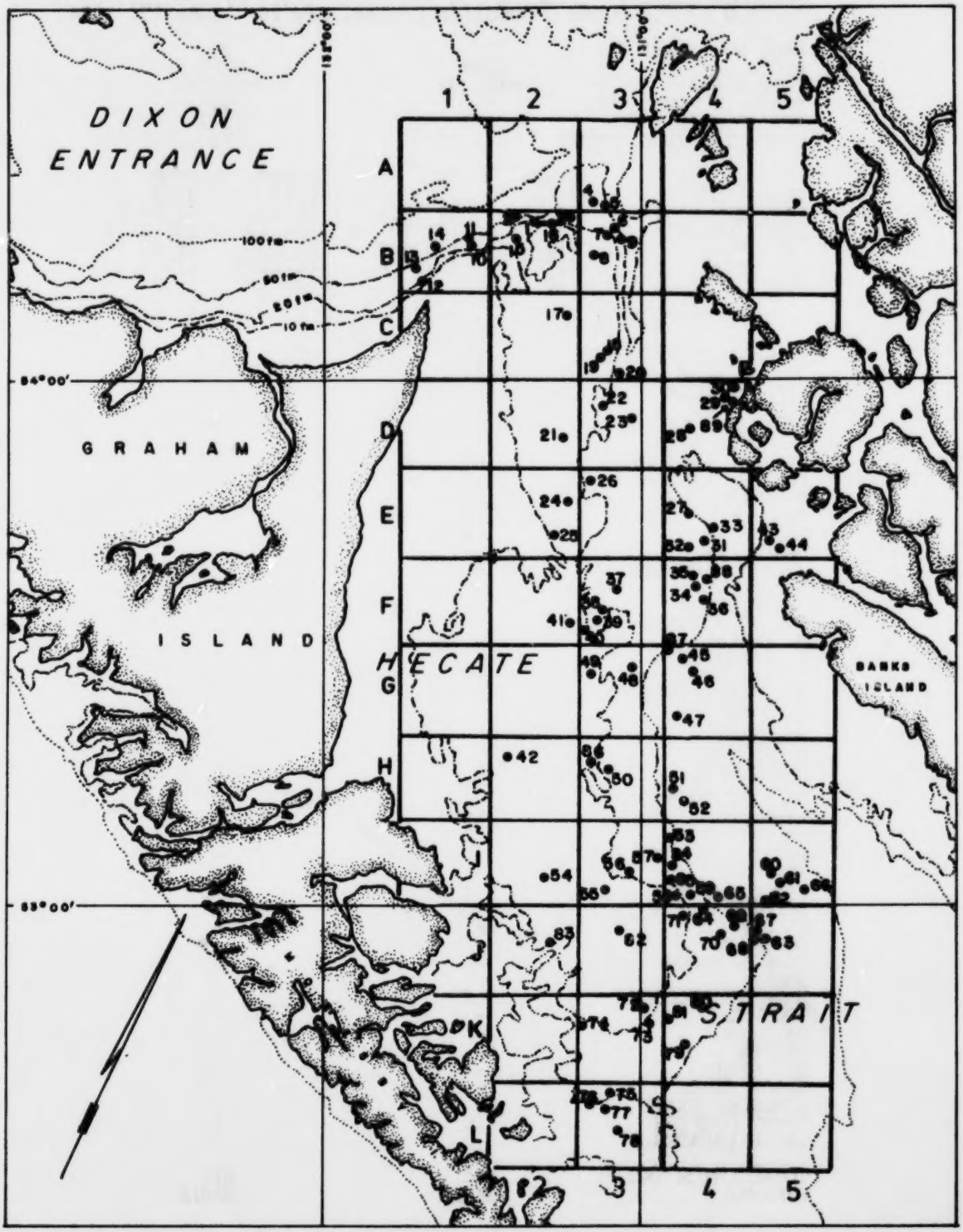


Fig. 2. Haul locations and Block-Strata for F/V ARCTIC OCEAN assemblage survey of Hecate Strait, May 28-June 17, 1984.

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	1		2	
BLOCK	B204		B205	
DATE (1984)	MAY 31		MAY 31	
DEPTH INTERVAL (FA)	40		50	
DURATION (H)	0.35		0.33	
DIRECTION (DEG. TRUE)	275		75	
	START	STOP	START	STOP
TIME (PDT)	7:42	8:03	9:17	9:37
LAT. (DEG,MIN)	54 19.4	54 19.4	54 19.6	54 19.7
LONG. (DEG,MIN)	131 18.5	131 20	131 23	131 21.1
LC-5990-X	11579.5	11574.4	11563	11568.7
LC-5990-Z	41727.5	41725.6	41721.7	41724.4
DEPTH (FA)	40	43	51	50
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	115		233	
BUTTER SOLE	41		3	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	32		59	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	65		13	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	2		20	
ROCK SOLE	4		-	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		34	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		1	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	13		-	
PACIFIC COD	9		98	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	1		5	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	2		53	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	-		9	
BLACK SKATE	-		2	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	10		87	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	294		617	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	3		4	
BLOCK	B203		A303	
DATE (1984)	MAY 31		MAY 31	
DEPTH INTERVAL (FA)	30		30	
DURATION (H)	0.33		0.35	
DIRECTION (DEG. TRUE)	295		25	
	START	STOP	START	STOP
TIME (PDT)	11:36	11:56	12:38	12:59
LAT.(DEG,MIN)	54 19.1	54 19.2	54 21.5	54 21.1
LONG.(DEG,MIN)	131 14.6	131 15.5	131 10.7	131 08.4
LC-5990-X	11595.3	11591.2	11588.9	11600.1
LC-5990-Z	41731.1	41729.8	41743.1	41745.3
DEPTH (FA)	34	36	35	35
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	1		56	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		2	
ENGLISH SOLE	4		65	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	-		21	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	-		7	
ROCK SOLE	-		-	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		2	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		TRACE	
LINGCOD	-		-	
PACIFIC COD	1		TRACE	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		1	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	TRACE		-	
SMELT	-		-	
WALLEYE POLLOCK	1		10	
WOLFEEL	-		-	
RATFISH	-		1	
SKATES	-		-	
BIG SKATE	40		9	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	-		33	
INVERTEBRATES	TRACE		-	
TOTAL CATCH (KG.)	47		207	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg,) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	5		6	
BLOCK	A304		B303	
DATE (1984)	MAY 31		MAY 31	
DEPTH INTERVAL (FA)	40		30	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	315		315	
	START	STOP	START	STOP
TIME (PDT)	14:00	14:20	17:00	17:20
LAT. (DEG,MIN)	54 20.8	54 21.5	54 18.2	54 19.0
LONG. (DEG,MIN)	131 07.3	131 07.8	131 05.6	131 06.4
LC-5990-X	11606.4	11598.7	11635.2	11624.8
LC-5990-Z	41746	41748.2	41741.8	41742.7
DEPTH (FA)	45	45	35	35
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	40		141	
BUTTER SOLE	2		3	
CURLFIN SOLE	-		-	
DOVER SOLE	31		-	
ENGLISH SOLE	884		81	
FLATHEAD SOLE	TRACE		1	
PACIFIC HALIBUT	-		19	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	53		24	
ROCK SOLE	TRACE		1	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	14		16	
PACIFIC COD	9		13	
PACIFIC TOMCOD	TRACE		-	
POACHERS	-		-	
SABLEFISH	2		1	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	79		15	
WOLFEEL	-		-	
RATFISH	35		2	
SKATES	-		-	
BIG SKATE	-		15	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	55		25	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	1204		357	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg,) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	7		8	
BLOCK	B302		B301	
DATE (1984)	MAY 31		MAY 31	
DEPTH INTERVAL (FA)	20		10	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	315		315	
	START	STOP	START	STOP
TIME (PDT)	19:06	19:26	20:08	20:28
LAT. (DEG,MIN)	54 17.8	54 18.4	54 15.3	54 14.4
LONG. (DEG,MIN)	131 05.8	131 07.1	131 09.9	131 09.3
LC-5990-X	11636.3	11626.7	11643.3	11652
LC-5990-Z	41740.6	41740.8	41727.1	41725.1
DEPTH (FA)	26	28	18	18
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	2		-	
BUTTER SOLE	-		1	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	17		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	-		23	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	-		109	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	TRACE		-	
LINGCOD	-		-	
PACIFIC COD	11		-	
PACIFIC TOMCOD	TRACE		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	9		-	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	-		17	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	7		6	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	46		156	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	9		10	
BLOCK	B304		B102	
DATE (1984)	MAY 31		JUNE 01	
DEPTH INTERVAL (FA)	40		20	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	325		255	
	START	STOP	START	STOP
TIME (PDT)	21:07	21:27	6:18	6:38
LAT. (DEG,MIN)	54 17.4	54 18.4	54 16.6	54 16.3
LONG. (DEG,MIN)	131 04.5	131 05.1	131 33.6	131 34.7
LC-5990-X	11644	11635	11555.8	11554.8
LC-5990-Z	41741	41742.9	41700.2	41697.5
DEPTH (FA)	47	45	25	27
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	67		15	
BUTTER SOLE	1		59	
CURLFIN SOLE	-		-	
DOVER SOLE	1		-	
ENGLISH SOLE	38		29	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	36		76	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	19		1	
ROCK SOLE	11		1	
SAND SOLE	-		-	
STARRY FLOUNDER	1		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	15		-	
PACIFIC COD	12		21	
PACIFIC TOMCOD	-		-	
POACHERS	-		TRACE	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	45		-	
WOLFEEL	-		-	
RATFISH	462		21	
SKATES	-		-	
BIG SKATE	30		25	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	9		14	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	747		262	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	11		12	
BLOCK	B103		B101	
DATE (1984)	JUNE 01		JUNE 01	
DEPTH INTERVAL (FA)	30		10	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	255		230	
	START	STOP	START	STOP
TIME (PDT)	7:28	7:48	8:38	8:58
LAT. (DEG,MIN)	54 16.7	54 16.3	54 12.6	54 12.4
LONG. (DEG,MIN)	131 34.4	131 35.7	131 42.2	131 43.8
LC-5990-X	11552.4	11551.7	11563.7	11560.7
LC-5990-Z	41699	41696.5	41677.4	41675.2
DEPTH (FA)	36	34	16	18
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	36		-	
BUTTER SOLE	5		-	
CURLFIN SOLE	-		-	
DOVER SOLE	3		-	
ENGLISH SOLE	26		6	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	105		36	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	3		-	
ROCK SOLE	2		-	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	10		25	
PACIFIC TOMCOD	-		-	
POACHERS	TRACE		-	
SABLEFISH	-		-	
SALMON	-		2	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	13		-	
SKATES	-		-	
BIG SKATE	4		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	3		-	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	210		69	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg,) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	13		14	
BLOCK	B104		B105	
DATE (1984)	JUNE 01		JUNE 01	
DEPTH INTERVAL (FA)	40		50	
DURATION (H)	0.33		23.33	
DIRECTION (DEG. TRUE)	35		60	
	START	STOP	START	STOP
TIME (PDT)	10:05	10:25	10:49	11:09
LAT. (DEG,MIN)	54 14.1	54 14.7	54 16.0	54 16.5
LONG. (DEG,MIN)	131 43.5	131 41.8	131 39.7	131 38.1
LC-5990-X	11547.7	11548	11542.7	11543.4
LC-5990-Z	41680.5	41683.6	41690.2	41693.9
DEPTH (FA)	46	42	54	58
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	19		250	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		24	
ENGLISH SOLE	4		40	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	1		17	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		5	
REX SOLE	2		23	
ROCK SOLE	-		-	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	2		5	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		1	
S. MALIGER	-		-	
S. PAUCISPINIS	-		6	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	11		5	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	5		8	
WOLFEEL	-		-	
RATFISH	-		33	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	13		26	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	57		443	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	15		16	
BLOCK	B201		B202	
DATE (1984)	JUNE 01		JUNE 01	
DEPTH INTERVAL (FA)	10		20	
DURATION (H)	0.30		0.33	
DIRECTION (DEG. TRUE)	275		115	
	START	STOP	START	STOP
TIME (PDT)	12:44	13:02	14:09	14:29
LAT. (DEG,MIN)	54 16.6	54 16.0	54 19.1	54 18.8
LONG. (DEG,MIN)	131 22.8	131 21.5	131 17	131 15.1
LC-5990-X	11588.3	11597.6	11586.9	11595.3
LC-5990-Z	41713.1	41713.3	41728	41729.8
DEPTH (FA)	14	12	27	25
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		2	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	-		1	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	7		74	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	-		2	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		49	
PACIFIC COD	5		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	15		22	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	6		4	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	33		154	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	17		18	
BLOCK	C201		C301	
DATE (1984)	JUNE 01		JUNE 01	
DEPTH INTERVAL (FA)	10		10	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	205		300	
	START	STOP	START	STOP
TIME (PDT)	16:05	16:25	18:05	18:25
LAT. (DEG,MIN)	54 08.5	54 07.6	54 02.3	54 03.1
LONG. (DEG,MIN)	131 16	131 16.9	131 07.3	131 07.5
LC-5990-X	11677.5	11681.4	11759	11750.7
LC-5990-Z	41697.8	41694.5	41691.2	41693.4
DEPTH (FA)	18	16	17	16
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	1		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	-		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	2		56	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	1		5	
SAND SOLE	-		1	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	15		16	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	147		5	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	166		83	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	19		20	
BLOCK	C302		C303	
DATE (1984)	JUNE 01		JUNE 01	
DEPTH INTERVAL (FA)	20		30	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	185		325	
	START	STOP	START	STOP
TIME (PDT)	18:51	19:11	20:53	21:13
LAT. (DEG,MIN)	54 02.5	54 01.5	53 59.4	54 00.3
LONG. (DEG,MIN)	131 06.8	131 06.9	131 07	131 07
LC-5990-X	11759.3	11766.3	11782.8	11775.3
LC-5990-Z	41692.3	41689.2	41682.8	41685.3
DEPTH (FA)	26	28	35	37
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	-		19	
BUTTER SOLE	-		3	
CURLFIN SOLE	-		1	
DOVER SOLE	-		2	
ENGLISH SOLE	3		53	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	75		31	
PACIFIC SANDDAB	2		30	
PETRALE SOLE	-		1	
REX SOLE	TRACE		17	
ROCK SOLE	24		26	
SAND SOLE	1		1	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		1	
S. MALIGER	-		-	
S. PAUCISPINIS	5		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	30		33	
PACIFIC COD	275		10	
PACIFIC TOMCOD	-		-	
POACHERS	-		TRACE	
SABLEFISH	128		99	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		8	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	-		2	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	543		337	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	21		22	
BLOCK	D201		D302	
DATE (1984)	JUNE 02		JUNE 02	
DEPTH INTERVAL (FA)	10		20	
DURATION (H)	0.22		0.33	
DIRECTION (DEG. TRUE)	215		335	
	START	STOP	START	STOP
TIME (PDT)	6:43	6:56	8:49	9:09
LAT.(DEG,MIN)	53 53.8	53 53.6	53 58.1	53 59.0
LONG.(DEG,MIN)	131 17.4	131 17.9	131 07.7	131 07.7
LC-5990-X	11790.4	11790.6	11790.7	11783.3
LC-5990-Z	41651.4	41650	41676.7	41679.6
DEPTH (FA)	16	16	28	25
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		2	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	-		17	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	-		52	
PACIFIC SANDDAB	-		1	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	-		7	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		1	
LINGCOD	-		-	
PACIFIC COD	-		2	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		1	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		TRACE	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		1	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	-		5	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	0		89	
REMARKS	UNUSABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	23		24	
BLOCK	D303		E202	
DATE (1984)	JUNE 02		JUNE 02	
DEPTH INTERVAL (FA)	30		20	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	225		155	
	START	STOP	START	STOP
TIME (PDT)	11:49	12:09	14:08	14:28
LAT. (DEG,MIN)	53 55.3	53 56.2	53 47.5	53 46.8
LONG. (DEG,MIN)	131 04.1	131 04.8	131 15.9	131 15.5
LC-5990-X	11826.1	11816.7	11845.7	11852.3
LC-5990-Z	41672.4	41674.7	41632.9	41631.1
DEPTH (FA)	36	35	23	24
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	2		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	1		-	
DOVER SOLE	1		-	
ENGLISH SOLE	65		-	
FLATHEAD SOLE	TRACE		-	
PACIFIC HALIBUT	44		1	
PACIFIC SANDDAB	10		-	
PETRALE SOLE	-		-	
REX SOLE	2		-	
ROCK SOLE	12		17	
SAND SOLE	-		1	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	1		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		2	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	TRACE		-	
LINGCOD	TRACE		TRACE	
PACIFIC COD	9		-	
PACIFIC TOMCOD	-		-	
POACHERS	TRACE		-	
SABLEFISH	5		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	TRACE		-	
WOLFEEL	-		-	
RATFISH	2		-	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	59		211	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	213		232	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	25		26	
BLOCK	E201		E302	
DATE (1984)	JUNE 02		JUNE 02	
DEPTH INTERVAL (FA)	10		20	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	15		155	
	START	STOP	START	STOP
TIME (PDT)	15:22	15:42	17:14	17:34
LAT. (DEG,MIN)	53 42.7	53 43.7	53 49.3	53 48.5
LONG. (DEG,MIN)	131 18.2	131 19.2	131 10	131 09
LC-5990-X	11874.6	11863.4	11852.9	11862.4
LC-5990-Z	41615.2	41617.2	41646.3	41645.2
DEPTH (FA)	13	18	27	27
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		1	
DOVER SOLE	-		-	
ENGLISH SOLE	1		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	-		12	
PACIFIC SANDDAB	-		TRACE	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	2		12	
SAND SOLE	1		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	TRACE		-	
LINGCOD	-		TRACE	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		TRACE	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	4		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	-		-	
INVERTEBRATES	2		-	
TOTAL CATCH (KG.)	10		25	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	27		28	
BLOCK	E404		D402	
DATE (1984)	JUNE 02		JUNE 03	
DEPTH INTERVAL (FA)	40		20	
DURATION (H)	0.33		0.08	
DIRECTION (DEG. TRUE)	130		110	
	START	STOP	START	STOP
TIME (PDT)	19:20	19:40	6:39	6:44
LAT. (DEG,MIN)	53 45.1	53 44.3	53 54.9	53 54.8
LONG. (DEG,MIN)	130 50.1	130 49	130 52.3	130 51.2
LC-5990-X	11962.3	11972.9	11876.7	11878
LC-5990-Z	41658	41657	41688.7	41688
DEPTH (FA)	44	45	27	26
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	TRACE		-	
ENGLISH SOLE	4		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	-		-	
PACIFIC SANDDAB	8		-	
PETRALE SOLE	TRACE		-	
REX SOLE	12		-	
ROCK SOLE	3		-	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	2		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	TRACE		-	
LINGCOD	1		-	
PACIFIC COD	TRACE		-	
PACIFIC TOMCOD	TRACE		-	
POACHERS	TRACE		-	
SABLEFISH	16		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	2		-	
WOLFEEL	-		-	
RATFISH	1		-	
SKATES	-		-	
BIG SKATE	17		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	20		-	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	86		0	
REMARKS	USABLE		UNUSABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	29		30	
BLOCK	D401		D403	
DATE (1984)	JUNE 03		JUNE 03	
DEPTH INTERVAL (FA)	10		30	
DURATION (H)	0.50		0.33	
DIRECTION (DEG. TRUE)	225		225	
	START	STOP	START	STOP
TIME (PDT)	9:42	10:12	13:15	13:35
LAT. (DEG,MIN)	53 58.9	53 59	54 00.2	53 59.5
LONG. (DEG,MIN)	130 43	130 43.1	130 42.8	130 44.4
LC-5990-X	11882.5	11890.7	11883.1	11880.6
LC-5990-Z	41715.3	41715.8	41718.9	41715
DEPTH (FA)	15	18	34	37
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	8		-	
DOVER SOLE	-		-	
ENGLISH SOLE	87		10	
FLATHEAD SOLE	2		19	
PACIFIC HALIBUT	13		6	
PACIFIC SANDDAB	3		-	
PETRALE SOLE	-		-	
REX SOLE	-		1	
ROCK SOLE	21		2	
SAND SOLE	3		-	
STARRY FLOUNDER	19		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	TRACE		2	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		TRACE	
S. WILSONI	-		-	
EELPOUTS	-		TRACE	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	1		-	
LINGCOD	TRACE		-	
PACIFIC COD	24		-	
PACIFIC TOMCOD	17		TRACE	
POACHERS	-		-	
SABLEFISH	75		1	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		TRACE	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		6	
WOLFEEL	-		-	
RATFISH	16		18	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	25		16	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	314		81	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	31		32	
BLOCK	E403		E402	
DATE (1984)	JUNE 05		JUNE 05	
DEPTH INTERVAL (FA)	30		20	
DURATION (H)	0.32		0.33	
DIRECTION (DEG. TRUE)	352		155	
	START	STOP	START	STOP
TIME (PDT)	6:36	6:55	7:32	7:52
LAT. (DEG,MIN)	53 41.9	53 43.0	53 41.7	53 41.0
LONG. (DEG,MIN)	130 47.5	130 47	130 49.7	130 48.3
LC-5990-X	11996.8	11990.8	11990.5	12001.6
LC-5990-Z	41651.3	41654.8	41647	41646.8
DEPTH (FA)	35	37	29	25
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	4		2	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	3		6	
PACIFIC SANDDAB	-		TRACE	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	3		5	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	7		-	
PACIFIC TOMCOD	-		-	
POACHERS	TRACE		TRACE	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	-		20	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		8	
SPINY DOGFISH	7		-	
INVERTEBRATES	9		10	
TOTAL CATCH (KG.)	33		51	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	33		34	
BLOCK	E405		F403	
DATE (1984)	JUNE 05		JUNE 05	
DEPTH INTERVAL (FA)	50		30	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	175		340	
	START	STOP	START	STOP
TIME (PDT)	8:34	8:54	10:38	10:58
LAT. (DEG,MIN)	53 43.6	53 42.5	53 38.3	53 39.1
LONG. (DEG,MIN)	130 46.4	130 45.8	130 47.4	130 47.5
LC-5990-X	11989	11999.7	12025.6	12018.7
LC-5990-Z	41657.2	41654.8	41639	41641.7
DEPTH (FA)	57	54	36	34
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	3		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	3		-	
ENGLISH SOLE	10		-	
FLATHEAD SOLE	TRACE		-	
PACIFIC HALIBUT	7		-	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	2		-	
REX SOLE	42		-	
ROCK SOLE	TRACE		-	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	TRACE		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	15		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	1		-	
LINGCOD	-		-	
PACIFIC COD	7		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	7		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	26		-	
WOLFEEL	-		-	
RATFISH	3		-	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	10		-	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	136		0	
REMARKS	USABLE		UNUSABLE	

Appendix table 1. Fishing log and catch (kg,) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	35		36	
BLOCK	F403		F404	
DATE (1984)	JUNE 05		JUNE 05	
DEPTH INTERVAL (FA)	30		40	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	180		10	
	START	STOP	START	STOP
TIME (PDT)	11:14	11:34	11:51	12:11
LAT. (DEG,MIN)	53 38.9	53 37.6	53 37.3	53 38.1
LONG. (DEG,MIN)	130 47.5	130 47.7	130 47.3	130 46.7
LC-5990-X	12021.1	12030.6	12033.7	12030
LC-5990-Z	41640.5	41636.1	41636	41639.4
DEPTH (FA)	36	35	44	46
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		TRACE	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	-		19	
FLATHEAD SOLE	-		TRACE	
PACIFIC HALIBUT	34		24	
PACIFIC SANDDAB	-		1	
PETRALE SOLE	-		3	
REX SOLE	-		-	
ROCK SOLE	1		-	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		TRACE	
LINGCOD	-		-	
PACIFIC COD	-		1	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	16		26	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		6	
SPINY DOGFISH	4		10	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	55		90	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	37		38	
BLOCK	F302		F303	
DATE (1984)	JUNE 05		JUNE 05	
DEPTH INTERVAL (FA)	20		30	
DURATION (H)	0.33		0.25	
DIRECTION (DEG. TRUE)	95		170	
	START	STOP	START	STOP
TIME (PDT)	13:45	14:05	14:31	14:46
LAT. (DEG,MIN)	53 36.6	53 35.6	53 34.1	53 33.3
LONG. (DEG,MIN)	131 05.9	131 06.4	131 08.1	131 08
LC-5990-X	11966	11971.8	11977.6	11983.1
LC-5990-Z	41609.8	41606	41598.3	41596.3
DEPTH (FA)	26	25	36	29
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	-		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	40		-	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	1		-	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	-		-	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	41		0	
REMARKS	USABLE		UNUSABLE	

Appendix table 1. Fishing log and catch (kg,) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	39		40	
BLOCK	F303		F301	
DATE (1984)	JUNE 05		JUNE 05	
DEPTH INTERVAL (FA)	30		10	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	125		350	
	START	STOP	START	STOP
TIME (PDT)	15:06	15:26	17:07	17:27
LAT. (DEG,MIN)	53 33.1	53 34.2	53 32.4	53 33.3
LONG. (DEG,MIN)	131 09.2	131 09.1	131 11.8	131 12.5
LC-5990-X	11979.8	11972.2	11975.9	11966.4
LC-5990-Z	41594.3	41598.1	41588.9	41590.9
DEPTH (FA)	38	35	18	16
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	29		2	
CURLFIN SOLE	TRACE		-	
DOVER SOLE	TRACE		-	
ENGLISH SOLE	69		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	6		-	
PACIFIC SANDDAB	55		TRACE	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	23		15	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	32		1	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	TRACE		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		7	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	-		12	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	-		-	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	214		37	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	41		42	
BLOCK	F201		H201	
DATE (1984)	JUNE 05		JUNE 05	
DEPTH INTERVAL (FA)	10		10	
DURATION (H)	0.33		0.27	
DIRECTION (DEG. TRUE)	130		110	
	START	STOP	START	STOP
TIME (PDT)	17:49	18:09	21:41	21:57
LAT. (DEG,MIN)	53 33.1	53 32.4	53 18.6	53 18.2
LONG. (DEG,MIN)	131 15.3	131 14.5	131 27.1	131 26
LC-5990-X	11958.8	11966.3	12024.2	12030.9
LC-5990-Z	41586.6	41585.3	41526	41525.7
DEPTH (FA)	15	16	17	16
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	TRACE		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	9		49	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	9		13	
SAND SOLE	1		4	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		4	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		1	
SALMON	-		-	
SANDLANCE	TRACE		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	13		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	11		241	
INVERTEBRATES	-		4	
TOTAL CATCH (KG.)	43		316	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	43		44	
BLOCK	E503		E502	
DATE (1984)	JUNE 06		JUNE 06	
DEPTH INTERVAL (FA)	30		20	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	195		155	
	START	STOP	START	STOP
TIME (PDT)	10:27	10:47	11:06	11:26
LAT. (DEG,MIN)	53 42.6	53 41.5	53 40.9	53 41.5
LONG. (DEG,MIN)	130 35.3	130 35.4	130 34.8	130 34.6
LC-5990-X	12044	12052	12058.7	12055
LC-5990-Z	41670	41666	41664.7	41667.8
DEPTH (FA)	36	33	25	24
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		2	
DOVER SOLE	TRACE		-	
ENGLISH SOLE	3		1	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	16		2	
PACIFIC SANDDAB	6		1	
PETRALE SOLE	TRACE		-	
REX SOLE	TRACE		-	
ROCK SOLE	4		18	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	TRACE		-	
PACIFIC COD	1		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		3	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	10		-	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	40		27	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg,) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	45		46	
BLOCK	G405		G406	
DATE (1984)	JUNE 07		JUNE 07	
DEPTH INTERVAL (FA)	50		60	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	255		225	
	START	STOP	START	STOP
TIME (PDT)	8:16	8:36	9:49	10:09
LAT. (DEG,MIN)	53 28.3	53 27.9	53 27.2	53 26.4
LONG. (DEG,MIN)	130 54.4	130 56	130 52.9	130 53.8
LC-5990-X	12073.3	12070.3	12087.9	12090.2
LC-5990-Z	41600.6	41597.1	41598.5	41594.6
DEPTH (FA)	56	57	64	66
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	4		41	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	2		TRACE	
ENGLISH SOLE	12		12	
FLATHEAD SOLE	-		TRACE	
PACIFIC HALIBUT	11		14	
PACIFIC SANDDAB	29		-	
PETRALE SOLE	7		1	
REX SOLE	14		12	
ROCK SOLE	1		-	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		6	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	TRACE		8	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	TRACE		TRACE	
LINGCOD	-		-	
PACIFIC COD	7		43	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	2		5	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	2		-	
WALLEYE POLLOCK	TRACE		25	
WOLFEEL	-		-	
RATFISH	3		-	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	5		20	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	99		187	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	47		48	
BLOCK	G407		G303	
DATE (1984)	JUNE 07		JUNE 07	
DEPTH INTERVAL (FA)	70		30	
DURATION (H)	0.33		0.25	
DIRECTION (DEG. TRUE)	325		190	
	START	STOP	START	STOP
TIME (PDT)	11:39	11:59	13:52	14:07
LAT. (DEG,MIN)	53 22.0	53 22.2	53 26.3	53 25.6
LONG. (DEG,MIN)	130 53.3	130 54.8	131 02.4	131 02.9
LC-5990-X	12125.3	12117.7	12057.6	12060.8
LC-5990-Z	41575.7	41578.6	41583.3	41580.5
DEPTH (FA)	75	77	33	34
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	392		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	65		-	
ENGLISH SOLE	6		-	
FLATHEAD SOLE	24		-	
PACIFIC HALIBUT	-		4	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	22		-	
ROCK SOLE	TRACE		19	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	18		-	
S. BABCOCKI	3		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	3		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	TRACE		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	TRACE		-	
LINGCOD	6		-	
PACIFIC COD	14		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	3		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	TRACE		-	
WALLEYE POLLOCK	2		-	
WOLFEEL	-		-	
RATFISH	1		-	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	14		6	
INVERTEBRATES	-		2	
TOTAL CATCH (KG.)	573		31	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	49		50	
BLOCK	G301		H302	
DATE (1984)	JUNE 07		JUNE 07	
DEPTH INTERVAL (FA)	10		20	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	200		140	
	START	STOP	START	STOP
TIME (PDT)	15:26	15:46	17:12	17:32
LAT. (DEG,MIN)	53 26.0	53 24.9	53 16.8	53 16.3
LONG. (DEG,MIN)	131 12.1	131 12.7	131 08.5	131 07.3
LC-5990-X	12023.1	12029.1	12114.5	12112.8
LC-5990-Z	41570.8	41566.6	41543.6	41543.4
DEPTH (FA)	18	14	23	25
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	-		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	13		33	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	8		2	
SAND SOLE	10		TRACE	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	18		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	266		53	
INVERTEBRATES	38		-	
TOTAL CATCH (KG.)	353		88	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	51		52	
BLOCK	H405		H406	
DATE (1984)	JUNE 07		JUNE 07	
DEPTH INTERVAL (FA)	50		60	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	140		150	
	START	STOP	START	STOP
TIME (PDT)	20:00	20:20	20:40	21:00
LAT. (DEG,MIN)	53 13.3	53 12.6	53 12.3	53 11.5
LONG. (DEG,MIN)	130 56.1	130 55.2	130 53.3	130 52.8
LC-5990-X	12178.1	12186.3	12196	12204
LC-5990-Z	41545.8	41544.4	41545	41543.4
DEPTH (FA)	55	56	65	66
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	TRACE		2	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	1		1	
ENGLISH SOLE	15		28	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	-		-	
PACIFIC SANDDAB	6		-	
PETRALE SOLE	-		5	
REX SOLE	18		11	
ROCK SOLE	-		-	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	TRACE		-	
PACIFIC HERRING	1		1	
LINGCOD	-		-	
PACIFIC COD	25		25	
PACIFIC TOMCOD	-		-	
POACHERS	TRACE		-	
SABLEFISH	-		3	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		TRACE	
WALLEYE POLLOCK	-		TRACE	
WOLFEEL	-		-	
RATFISH	TRACE		1	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	14		10	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	80		87	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	53		54	
BLOCK	I404		I201	
DATE (1984)	JUNE 07		JUNE 08	
DEPTH INTERVAL (FA)	40		10	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	205		125	
	START	STOP	START	STOP
TIME (PDT)	22:55	23:15	5:55	6:15
LAT. (DEG,MIN)	53 07.2	53 06.3	53 02.7	53 02.2
LONG. (DEG,MIN)	130 55.8	130 57	131 22.8	131 21.6
LC-5990-X	12223.6	12224.5	12153.3	12160.4
LC-5990-Z	41524.2	41520	41480.4	41479.8
DEPTH (FA)	47	44	19	18
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	TRACE		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		2	
DOVER SOLE	TRACE		-	
ENGLISH SOLE	59		1	
FLATHEAD SOLE	2		-	
PACIFIC HALIBUT	14		7	
PACIFIC SANDDAB	21		-	
PETRALE SOLE	3		-	
REX SOLE	4		-	
ROCK SOLE	2		45	
SAND SOLE	-		5	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	TRACE		-	
LINGCOD	-		-	
PACIFIC COD	-		1	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	2		-	
SALMON	-		-	
SANDLANCE	-		TRACE	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	TRACE		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	2		-	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	42		-	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	151		61	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	55		56	
BLOCK	I301		I302	
DATE (1984)	JUNE 08		JUNE 08	
DEPTH INTERVAL (FA)	10		20	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	60		95	
	START	STOP	START	STOP
TIME (PDT)	7:33	7:53	8:34	8:54
LAT. (DEG,MIN)	53 01.7	53 01.0	53 03.0	53 02.9
LONG. (DEG,MIN)	131 08.3	131 08.2	131 03.2	131 01.2
LC-5990-X	12213	12218.8	12223.9	12232.1
LC-5990-Z	41491.5	41489	41501.7	41503.3
DEPTH (FA)	18	17	22	25
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	1		-	
DOVER SOLE	-		-	
ENGLISH SOLE	TRACE		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	10		18	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	17		-	
SAND SOLE	4		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		TRACE	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	31		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	26		53	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	89		71	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	57		58	
BLOCK	I303		I401	
DATE (1984)	JUNE 08		JUNE 08	
DEPTH INTERVAL (FA)	30		10	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	150		165	
	START	STOP	START	STOP
TIME (PDT)	9:48	10:08	10:51	11:11
LAT. (DEG,MIN)	53 05.2	53 05.0	53 01.5	53 00.8
LONG. (DEG,MIN)	130 58	130 56.5	130 55.4	130 54
LC-5990-X	12228.4	12236	12264.9	12275.7
LC-5990-Z	41514.9	41515.7	41504.5	41503.5
DEPTH (FA)	35	36	17	19
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	TRACE		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	35		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	9		24	
PACIFIC SANDDAB	6		-	
PETRALE SOLE	-		-	
REX SOLE	TRACE		-	
ROCK SOLE	1		3	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		TRACE	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	2		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	41		73	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	94		100	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	59		60	
BLOCK	I403		I505	
DATE (1984)	JUNE 08		JUNE 08	
DEPTH INTERVAL (FA)	30		50	
DURATION (H)	0.32		0.33	
DIRECTION (DEG. TRUE)	350		205	
	START	STOP	START	STOP
TIME (PDT)	11:31	11:50	14:44	15:04
LAT. (DEG,MIN)	53 01.5	53 02.4	53 03.3	53 02.4
LONG. (DEG,MIN)	130 52.3	130 52.6	130 38	130 38.3
LC-5990-X	12277.6	12270.2	12323.8	12328.9
LC-5990-Z	41508.1	41510.8	41531.5	41527.9
DEPTH (FA)	36	35	55	54
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		TRACE	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	-		2	
FLATHEAD SOLE	-		TRACE	
PACIFIC HALIBUT	-		2	
PACIFIC SANDDAB	-		TRACE	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	-		2	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		TRACE	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	-		14	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	0		20	
REMARKS	UNUSABLE		USABLE	

Appendix table 1. Fishing log and catch (kg,) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	61		62	
BLOCK	I504		I506	
DATE (1984)	JUNE 08		JUNE 08	
DEPTH INTERVAL (FA)	40		60	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	160		310	
	START	STOP	START	STOP
TIME (PDT)	15:26	15:46	16:16	16:36
LAT. (DEG,MIN)	53 02.2	53 01.5	53 00.0	53 00.6
LONG. (DEG,MIN)	130 37	130 36.1	130 37.9	130 39.3
LC-5990-X	12335.9	12344.8	12346.9	12336.9
LC-5990-Z	41528.8	41527.1	41519.4	41520.1
DEPTH (FA)	46	48	66	63
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	TRACE		1	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	2		21	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	-		10	
PACIFIC SANDDAB	1		-	
PETRALE SOLE	4		-	
REX SOLE	-		2	
ROCK SOLE	2		2	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIG R	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		6	
PACIFIC COD	-		2	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		3	
WOLFEEL	-		-	
RATFISH	-		4	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	25		9	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	34		60	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	63		64	
BLOCK	J506		J404	
DATE (1984)	JUNE 11		JUNE 11	
DEPTH INTERVAL (FA)	60		40	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	315		130	
	START	STOP	START	STOP
TIME (PDT)	6:50	7:10	8:29	8:49
LAT. (DEG,MIN)	52 57.5	52 58.1	53 00.0	52 59.6
LONG. (DEG,MIN)	130 38.7	130 40	130 48.9	130 47.6
LC-5990-X	12361	12351.7	12301.7	12310
LC-5990-Z	41509.2	41509.6	41506.5	41506.3
DEPTH (FA)	65	65	48	49
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	10		TRACE	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		4	
ENGLISH SOLE	8		21	
FLATHEAD SOLE	-		1	
PACIFIC HALIBUT	6		-	
PACIFIC SANDDAB	-		10	
PETRALE SOLE	-		-	
REX SOLE	1		126	
ROCK SOLE	-		-	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		TRACE	
GREENLINGS	-		-	
PACIFIC HAKE	TRACE		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	227		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	2		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	7		TRACE	
WOLFEEL	-		-	
RATFISH	3		1	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	11		21	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	275		184	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	65		66	
BLOCK	I405		I506	
DATE (1984)	JUNE 11		JUNE 11	
DEPTH INTERVAL (FA)	50		60	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	165		190	
	START	STOP	START	STOP
TIME (PDT)	9:36	9:56	12:25	12:45
LAT.(DEG,MIN)	53 01.2	53 00.5	53 01.9	53 00.9
LONG.(DEG,MIN)	130 46.9	130 46.4	130 32	130 30.5
LC-5990-X	12301.3	12308	12358.7	12364.8
LC-5990-Z	41513.1	41511	41533.7	41529.7
DEPTH (FA)	57	56	65	65
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	1		TRACE	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	1		-	
ENGLISH SOLE	60		15	
FLATHEAD SOLE	7		-	
PACIFIC HALIBUT	-		1	
PACIFIC SANDDAB	12		-	
PETRALE SOLE	1		1	
REX SOLE	35		2	
ROCK SOLE	-		-	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		TRACE	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	TRACE		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		TRACE	
LINGCOD	-		4	
PACIFIC COD	5		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	TRACE		1	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	TRACE		-	
WOLFEEL	-		-	
RATFISH	3		1	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	21		11	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	146		36	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	67		68	
BLOCK	J505		J504	
DATE (1984)	JUNE 11		JUNE 11	
DEPTH INTERVAL (FA)	50		40	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	310		315	
	START	STOP	START	STOP
TIME (PDT)	13:48	14:08	14:41	15:01
LAT. (DEG,MIN)	52 57.6	52 58.1	52 57.4	52 57.9
LONG. (DEG,MIN)	130 39.3	130 40.9	130 39.5	130 40.5
LC-5990-X	12358	12348	12358.1	12350.7
LC-5990-Z	41508.8	41508.8	41508	41508.5
DEPTH (FA)	56	56	44	46
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	TRACE		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	8		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	-		8	
PACIFIC SANDDAB	9		-	
PETRALE SOLE	1		-	
REX SOLE	-		-	
ROCK SOLE	-		2	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	77		24	
PACIFIC COD	1		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	1		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	TRACE		-	
SKATES	-		-	
BIG SKATE	-		53	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		14	
SPINY DOGFISH	7		7	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	104		108	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	69		70	
BLOCK	J403		J402	
DATE (1984)	JUNE 11		JUNE 11	
DEPTH INTERVAL (FA)	30		20	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	305		129	
	START	STOP	START	STOP
TIME (PDT)	15:36	15:56	16:23	16:43
LAT. (DEG,MIN)	52 57.5	52 56.8	52 56.2	52 55.5
LONG. (DEG,MIN)	130 44.7	130 45.3	130 47.4	130 48.2
LC-5990-X	12336.9	12338.4	12334.4	12336.3
LC-5990-Z	41502.1	41498.8	41494	41490.5
DEPTH (FA)	34	32	26	23
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	1		1	
DOVER SOLE	-		-	
ENGLISH SOLE	-		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	21		46	
PACIFIC SANDDAB	TRACE		-	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	11		50	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		5	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	6		6	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	TRACE		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		2	
SKATES	-		-	
BIG SKATE	74		55	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	-		5	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	113		170	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg,) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	71		72	
BLOCK	J401		K301	
DATE (1984)	JUNE 11		JUNE 12	
DEPTH INTERVAL (FA)	10		10	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	305		225	
	START	STOP	START	STOP
TIME (PDT)	17:52	18:12	10:44	11:04
LAT.(DEG,MIN)	52 59.1	52 59.2	52 48.8	52 49.8
LONG.(DEG,MIN)	130 52.9	130 54.3	130 59.8	131 00.9
LC-5990-X	12291.6	12285.1	12335.2	12324.4
LC-5990-Z	41498.6	41497.5	41450.9	41453.3
DEPTH (FA)	18	18	18	16
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	TRACE		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	30		-	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	6		-	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		9	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		24	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		2	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	TRACE		-	
SCULPINS	-		8	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		4	
SKATES	-		-	
BIG SKATE	3		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	117		-	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	156		47	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	75		76	
BLOCK	L304		L305	
DATE (1984)	JUNE 13		JUNE 13	
DEPTH INTERVAL (FA)	40		50	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	65		95	
	START	STOP	START	STOP
TIME (PDT)	8:44	9:04	11:15	11:35
LAT.(DEG,MIN)	52 37.9	52 37.7	52 37.2	52 37.0
LONG.(DEG,MIN)	131 05.7	131 07.2	131 10.2	131 09
LC-5990-X	12385.2	12380.4	12372.4	12378.1
LC-5990-Z	41407	41405.2	41401.1	41401.2
DEPTH (FA)	48	47	58	57
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		1	
DOVER SOLE	-		-	
ENGLISH SOLE	-		TRACE	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	-		-	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		4	
REX SOLE	-		-	
ROCK SOLE	-		TRACE	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	1		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	1		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	5		7	
PACIFIC COD	-		8	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		TRACE	
WOLFEEL	-		5	
RATFISH	2		2	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	4		31	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	13		58	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	77		78	
BLOCK	L306		L307	
DATE (1984)	JUNE 13		JUNE 13	
DEPTH INTERVAL (FA)	60		70	
DURATION (H)	0.33		0.38	
DIRECTION (DEG. TRUE)	265		270	
	START	STOP	START	STOP
TIME (PDT)	12:05	12:25	13:44	14:07
LAT. (DEG,MIN)	52 36.8	52 37.0	52 33.8	52 34.3
LONG. (DEG,MIN)	131 07.6	131 09.4	131 05.1	131 06.7
LC-5990-X	12384.7	12376.6	12413.9	12404.5
LC-5990-Z	41401.6	41400.9	41393.2	41393.8
DEPTH (FA)	63	63	75	74
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	-		7	
BUTTER SOLE	-		-	
CURLFIN SOLE	1		-	
DOVER SOLE	-		-	
ENGLISH SOLE	-		1	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	46		-	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	12		-	
REX SOLE	-		3	
ROCK SOLE	TRACE		2	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		102	
S. ENTOMELAS	-		TRACE	
S. FLAVIDUS	-		-	
S. MALIGER	1		-	
S. PAUCISPINIS	-		74	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	35		7	
PACIFIC COD	-		9	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		1	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	TRACE		18	
WOLFEEL	-		-	
RATFISH	6		2	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	7		147	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	108		373	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	79		80	
BLOCK	K404		K403	
DATE (1984)	JUNE 13		JUNE 13	
DEPTH INTERVAL (FA)	40		30	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	60		65	
	START	STOP	START	STOP
TIME (PDT)	16:58	17:18	18:16	18:36
LAT. (DEG,MIN)	52 43.2	52 44.0	52 48.4	52 48.9
LONG. (DEG,MIN)	130 52.3	130 51.8	130 49.1	130 47.7
LC-5990-X	12403	12399.4	12380.9	12383.2
LC-5990-Z	41438	41441.3	41460.3	41463.5
DEPTH (FA)	46	45	37	36
SPECIES CATCH (KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		TRACE	
DOVER SOLE	-		-	
ENGLISH SOLE	TRACE		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	20		1	
PACIFIC SANDDAB	4		TRACE	
PETRALE SOLE	-		3	
REX SOLE	TRACE		-	
ROCK SOLE	9		3	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. nINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	TRACE		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	TRACE		-	
WOLFEEL	-		-	
RATFISH	1		-	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	5		2	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	39		9	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	81		82	
BLOCK	K402		J301	
DATE (1984)	JUNE 13		JUNE 14	
DEPTH INTERVAL (FA)	20		10	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	25		70	
	START	STOP	START	STOP
TIME (PDT)	19:41	20:01	8:00	8:20
LAT. (DEG,MIN)	52 46.7	52 47.5	52 58.5	52 58.8
LONG. (DEG,MIN)	130 56.1	130 55.4	131 03.5	131 02
LC-5990-X	12364.3	12361.3	12254.1	12257.5
LC-5990-Z	41447	41450.5	41481.9	41484.3
DEPTH (FA)	27	26	18	16
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	-		-	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	12		14	
PACIFIC SANDDAB	TRACE		-	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	-		19	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	8		-	
SKATES	-		-	
BIG SKATE	11		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	-		184	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	31		217	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	83		84	
BLOCK	J202		I403	
DATE (1984)	JUNE 14		JUNE 15	
DEPTH INTERVAL (FA)	20		30	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	220		135	
	START	STOP	START	STOP
TIME (PDT)	10:01	10:21	8:33	8:53
LAT.(DEG,MIN)	52 56.6	52 56.0	53 04.7	53 03.9
LONG.(DEG,MIN)	131 15	131 16.1	130 55.6	130 54.3
LC-5990-X	12224	12223.7	12242.3	12252.3
LC-5990-Z	41463.2	41460.4	41515.6	41514.5
DEPTH (FA)	23	18	36	35
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		TRACE	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		-	
DOVER SOLE	-		-	
ENGLISH SOLE	-		TRACE	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	-		8	
PACIFIC SANDDAB	-		6	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	2		1	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	5		-	
SKATES	-		-	
BIG SKATE	-		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	56		5	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	63		20	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg,) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	85		86	
BLOCK	I402		H301	
DATE (1984)	JUNE 15		JUNE 15	
DEPTH INTERVAL (FA)	20		10	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	290		185	
	START	STOP	START	STOP
TIME (PDT)	9:20	9:40	12:41	13:01
LAT. (DEG,MIN)	53 02.7	53 03.2	53 16.6	53 15.8
LONG. (DEG,MIN)	130 55.8	130 50.1	131 08.8	131 10.3
LC-5990-X	12254.4	12246.7	12101	12104.9
LC-5990-Z	41508.5	41508.7	41541.4	41538.3
DEPTH (FA)	25	25	18	20
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		-	
BUTTER SOLE	-		-	
CURLFIN SOLE	-		1	
DOVER SOLE	-		-	
ENGLISH SOLE	TRACE		TRACE	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	8		-	
PACIFIC SANDDAB	TRACE		TRACE	
PETRALE SOLE	-		-	
REX SOLE	-		-	
ROCK SOLE	7		15	
SAND SOLE	-		1	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		-	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		-	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	-		-	
PACIFIC COD	-		-	
PACIFIC TOMCOD	-		-	
POACHERS	-		-	
SABLEFISH	-		-	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		-	
WOLFEEL	-		-	
RATFISH	-		-	
SKATES	-		-	
BIG SKATE	-		45	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	-		22	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	15		84	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	87		88	
BLOCK	G404		F404	
DATE (1984)	JUNE 15		JUNE 15	
DEPTH INTERVAL (FA)	40		40	
DURATION (H)	0.33		0.33	
DIRECTION (DEG. TRUE)	145		205	
	START	STOP	START	STOP
TIME (PDT)	15:37	15:57	18:57	19:17
LAT. (DEG,MIN)	53 34.2	53 33.8	53 37.9	53 36.2
LONG. (DEG,MIN)	131 09.9	131 11.4	130 47	130 48.5
LC-5990-X	12050.5	12051.5	12028	12034.9
LC-5990-Z	41601.1	41598	41640	41636
DEPTH (FA)	46	47	46	47
SPECIES CATCH(KG.)				
ARROWTOOTH FLOUNDER	-		21	
BUTTER SOLE	-		TRACE	
CURLFIN SOLE	-		-	
DOVER SOLE	-		2	
ENGLISH SOLE	1		34	
FLATHEAD SOLE	-		-	
PACIFIC HALIBUT	15		14	
PACIFIC SANDDAB	-		-	
PETRALE SOLE	-		4	
REX SOLE	-		19	
ROCK SOLE	6		2	
SAND SOLE	-		-	
STARRY FLOUNDER	-		-	
S. ALUTUS	-		TRACE	
S. BABCOCKI	-		-	
S. BREVISPINIS	-		-	
S. ENTOMELAS	-		-	
S. FLAVIDUS	-		-	
S. MALIGER	-		-	
S. PAUCISPINIS	-		157	
S. PINNIGER	-		-	
S. WILSONI	-		-	
EELPOUTS	-		-	
GREENLINGS	-		-	
PACIFIC HAKE	-		-	
PACIFIC HERRING	-		-	
LINGCOD	TRACE		-	
PACIFIC COD	-		9	
PACIFIC TOMCOD	-		-	
POACHERS	-		TRACE	
SABLEFISH	-		191	
SALMON	-		-	
SANDLANCE	-		-	
SCULPINS	-		-	
SHINER PERCH	-		-	
SMELT	-		-	
WALLEYE POLLOCK	-		30	
WOLFEEL	-		-	
RATFISH	6		50	
SKATES	-		-	
BIG SKATE	24		-	
BLACK SKATE	-		-	
LONGNOSE SKATE	-		-	
SPINY DOGFISH	16		22	
INVERTEBRATES	-		-	
TOTAL CATCH (KG.)	68		555	
REMARKS	USABLE		USABLE	

Appendix table 1. Fishing log and catch (kg.) by species, by haul, for F/V ARCTIC OCEAN Groundfish Cruise, May 28 - June 17, 1984.

HAUL NO.	89
BLOCK	D402
DATE (1984)	JUNE 16
DEPTH INTERVAL (FA)	20
DURATION (H)	0.33
DIRECTION (DEG. TRUE)	220

	START	STOP
TIME (PDT)	10:07	10:27
LAT.(DEG,MIN)	53 58.2	53 57.8
LONG.(DEG,MIN)	130 42.9	130 44
LC-5990-X	11887.9	11886.7
LC-5990-Z	41717.1	41714.2
DEPTH (FA)	18	22

SPECIES CATCH(KG.)	
ARROWTOOTH FLOUNDER	-
BUTTER SOLE	-
CURLFIN SOLE	-
DOVER SOLE	TRACE
ENGLISH SOLE	40
FLATHEAD SOLE	3
PACIFIC HALIBUT	17
PACIFIC SANDDAB	1
PETRALE SOLE	-
REX SOLE	TRACE
ROCK SOLE	3
SAND SOLE	-
STARRY FLOUNDER	4
S. ALUTUS	-
S. BABCOCKI	-
S. BREVISPINIS	-
S. ENTOMELAS	-
S. FLAVIDUS	-
S. MALIGER	-
S. PAUCISPINIS	-
S. PINNIGER	-
S. WILSONI	-
EELPOUTS	-
GREENLINGS	-
PACIFIC HAKE	-
PACIFIC HERRING	1
LINGCOD	-
PACIFIC COD	3
PACIFIC TOMCOD	TRACE
POACHERS	-
SABLEFISH	2
SALMON	-
SANDLANCE	-
SCULPINS	-
SHINER PERCH	-
SMELT	-
WALLEYE POLLOCK	-
WOLFEEL	-
RATFISH	3
SKATES	-
BIG SKATE	-
BLACK SKATE	-
LONGNOSE SKATE	-
SPINY DOGFISH	5
INVERTEBRATES	-
TOTAL CATCH (KG.)	82
REMARKS	USABLE

Appendix table 2. Common and scientific names of fish species caught during F/V ARCTIC OCEAN assemblage survey, May 28-June 17, 1984.

Common name	Scientific name
Flatfish	
Arrowtooth flounder	Atheresthes stomias
Butter sole	Isopsetta isolepis
Curlfin sole	Pleuronichthys decurrens
Dover sole	Microstomus pacificus
English sole	Parophrys vetulus
Flathead sole	Hippoglossoides elassodon
Pacific halibut	Hippoglossus stenolepis
Pacific sanddab	Citharichthys sordidus
Petrale sole	Eopsetta jordani
Rex sole	Glyptocephalus zachirus
Rock sole	Lepidopsetta bilineata
Sand sole	Psettichthys melanostictus
Starry flounder	Platichthys stellatus
Rockfish	
Pacific ocean perch	Sebastes alutus
Redbanded rockfish	Sebastes babcocki
Silvergrey rockfish	Sebastes brevispinis
Widow rockfish	Sebastes entomelas
Yellowtail rockfish	Sebastes flavidus
Quillback rockfish	Sebastes maliger
Rocaccio	Sebastes paucispinis
Canary rockfish	Sebastes pinniger
Pygmy rockfish	Sebastes wilsoni
Roundfish	
Chinook salmon	Oncorhynchus tshawytscha
Eelpout	Zoarcidae
Greenling	Hexagrammos decagrammus
Lingcod	Ophiodon elongatus
Pacific cod	Gadus macrocephalus
Pacific hake	Merluccius productus
Pacific herring	Clupea harengus pallasi
Pacific sandlance	Ammodytes hexapterus
Pacific tomcod	Microgadus proximus
Poacher	Agonidae
Sablefish	Anoplopoma fimbria
Sculpin	Cottidae
Shiner perch	Cymatogaster aggregatus
Smelt	Osmeridae
Walleye pollock	Theragra chalcogramma
Wolfeel	Anarrhichthys ocellatus
Selachii	
Big skate	Raja binoculata
Black skate	Raja kincaidi
Longnose skate	Raja rhina
Ratfish	Hydrolagus colliei
Spiny dogfish	Squalus acanthias

Appendix table 3. Length-frequency (nos. measured), by haul, of arrowtooth flounder collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984. (Nos. caught in parenthesis, when > nos. measured.)

Fork length (cm)	Haul no.																	
	1	2	4	5	6	7	9	10	11	13	14	20	22	23	33	45	46	47
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	0	1	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-	-	-
17	-	-	-	1	-	-	-	-	-	-	-	1	0	-	-	-	-	-
18	-	-	-	0	-	-	-	-	-	-	-	0	0	-	-	-	-	-
19	-	-	-	0	-	-	-	-	-	-	-	0	0	-	-	-	-	-
20	-	-	-	0	-	-	-	-	-	-	-	0	0	-	-	-	-	-
21	-	-	1	0	-	-	-	-	-	-	-	0	0	1	-	-	1	-
22	-	-	0	1	-	-	-	-	-	-	-	1	0	0	-	1	1	-
23	-	1	1	0	-	-	-	-	-	-	-	2	0	1	-	0	0	-
24	2	0	0	1	-	1	-	-	-	-	-	0	0	0	-	1	0	-
25	0	0	1	2	-	0	1	-	-	-	-	0	0	0	-	0	0	-
26	0	0	2	0	-	0	0	-	-	-	-	0	1	1	-	1	1	-
27	0	4	1	0	-	0	0	-	-	-	-	0	0	0	1	0	0	2
28	0	1	0	0	-	0	0	-	-	-	-	0	0	3	1	0	3	2
29	0	0	0	0	1	0	0	-	-	-	-	0	0	0	0	0	2	0
30	2	1	0	0	0	0	0	-	-	-	-	0	0	0	0	0	0	0
31	1	0	0	1	1	0	1	-	-	-	-	1	0	0	0	0	2	1
32	2	2	1	1	0	0	0	-	-	-	-	0	0	0	0	0	1	1
33	3	3	1	0	0	0	1	-	1	-	-	0	0	0	0	0	1	0
34	0	2	1	0	1	0	0	1	1	-	-	0	0	0	0	0	1	1
35	2	2	0	0	0	0	1	0	0	-	-	0	0	0	0	1	2	2
36	2	4	1	0	0	0	0	1	1	-	-	0	0	0	0	0	4	1
37	4	6	2	0	1	0	0	2	0	-	-	0	1	0	0	0	1	4
38	6	7	3	0	1	0	1	0	0	-	-	0	0	0	0	0	2	4
39	3	8	2	0	0	0	1	0	1	-	-	0	0	0	1	0	1	1
40	13	7	2	0	3	0	1	0	0	1	2	0	0	0	1	0	2	7
41	8	3	2	2	1	0	3	0	0	1	3	0	0	0	1	0	4	4
42	7	4	2	0	2	0	1	0	1	0	4	0	0	0	1	0	1	1
43	10	13	1	2	0	1	0	1	0	3	2	0	0	0	0	1	2	4
44	6	5	3	0	1	0	1	3	0	1	6	0	0	0	0	0	4	6
45	2	11	3	1	3	1	1	2	0	1	9	0	0	0	0	0	1	8
46	4	11	2	3	1	2	2	1	0	1	6	0	0	0	0	0	6	4
47	4	17	3	1	2	2	0	2	0	1	13	0	0	0	0	0	4	10
48	8	11	1	0	2	2	3	1	0	1	14	0	0	0	0	0	0	7
49	9	11	1	1	2	2	1	1	0	1	13	1	0	1	0	0	2	5
50	5	13	1	0	2	2	3	1	0	1	13	0	1	0	0	0	2	3
51	4	10	1	1	2	2	1	1	0	1	5	1	0	0	0	0	1	4
52	3	12	1	2	2	2	1	0	0	2	15	1	0	0	0	0	0	4
53	3	10	1	1	2	3	0	0	0	1	5	1	0	0	0	0	0	5
54	1	4	2	0	3	3	2	1	0	2	10	1	1	0	0	0	1	9
55	2	5	0	1	5	2	0	1	0	3	3	2	0	0	0	0	0	10
56	1	7	3	2	2	3	1	0	0	1	5	1	1	0	1	0	2	8
57	0	1	4	0	2	3	1	0	0	1	1	2	0	0	0	0	3	8
58	1	3	1	0	3	5	1	0	0	1	2	4	1	0	0	0	2	11
59	2	3	1	1	2	2	0	0	0	1	4	0	1	0	0	0	2	5
60	2	1	1	3	3	3	1	0	0	1	0	3	1	0	0	0	0	7
61	1	6	0	0	6	2	0	0	0	1	3	0	1	0	0	0	0	2
62	0	5	0	1	5	3	3	1	0	1	0	1	0	0	0	0	0	0
63	2	1	0	0	3	5	0	1	0	1	1	0	0	0	0	0	0	1
64	0	1	0	1	1	1	3	0	0	1	0	1	0	0	0	0	0	0
65	0	1	0	0	5	2	2	0	0	1	0	0	0	0	0	0	0	2
66	0	2	0	1	3	2	1	0	0	1	1	2	0	0	0	0	0	-
67	0	1	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	-
68	0	3	0	1	2	0	0	0	0	1	0	0	0	0	0	0	1	-
69	1	1	1	1	4	0	1	0	0	0	0	0	0	0	0	0	0	-
70	-	1	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Total	126	226	59	35	85	3	46	28	28	19	143 (259)	19	6	6	6	7	60	149 (372)

Appendix table 3 (Cont'd). Length-frequency (nos. measured), by haul, of arrowtooth flounder collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984.

Fork length (cm)	Haul no.													
	51	52	53	60	61	62	63	64	65	66	67	78	84	88
11	-	2	-	1	-	-	-	-	-	-	-	-	-	-
12	2	1	-	0	-	-	-	-	3	-	1	-	1	-
13	1	3	1	0	1	-	-	1	1	-	0	-	-	-
14	0	1	1	1	1	-	-	0	1	-	0	-	-	-
15	0	1	-	1	-	-	-	0	0	-	0	-	-	-
16	0	0	-	-	-	-	-	0	0	-	0	-	-	-
17	0	0	-	-	-	-	-	0	1	-	0	-	-	-
18	0	0	-	-	-	-	-	0	2	-	0	-	-	-
19	0	0	-	-	-	-	-	1	4	-	0	-	-	-
20	1	0	-	-	-	-	-	0	1	1	0	-	-	-
21	-	0	-	-	-	-	-	1	2	-	0	-	-	-
22	-	1	-	-	-	3	-	-	2	-	0	-	-	-
23	-	0	-	-	-	0	1	-	0	-	2	-	-	-
24	-	0	-	-	-	1	0	-	0	-	-	-	-	-
25	-	0	-	-	-	0	0	-	2	-	-	-	-	-
26	-	1	-	-	-	0	0	-	-	-	-	-	-	-
27	-	0	-	-	-	1	0	-	-	-	-	-	-	1
28	-	1	-	-	-	-	0	-	-	-	-	-	-	0
29	-	0	-	-	-	-	0	-	-	-	-	-	-	0
30	-	0	-	-	-	-	0	-	-	-	-	-	-	0
31	-	1	-	-	-	-	0	-	-	-	-	-	-	0
32	-	0	-	-	-	-	0	-	-	-	-	-	-	0
33	-	0	-	-	-	-	2	-	-	-	-	1	-	0
34	-	0	-	-	-	-	0	-	-	-	-	0	-	0
35	-	0	-	-	-	-	0	-	-	-	-	1	-	0
36	-	0	-	-	-	-	1	-	-	-	-	1	-	0
37	-	0	-	-	-	-	2	-	-	-	-	0	-	0
38	-	0	-	-	-	-	1	-	-	-	-	0	-	0
39	-	0	-	-	-	-	3	-	-	-	-	0	-	0
40	-	1	-	-	-	-	0	-	-	-	-	0	-	0
41	-	0	-	-	-	-	0	-	-	-	-	0	-	0
42	-	0	-	-	-	-	0	-	-	-	-	0	-	1
43	-	0	-	-	-	-	0	-	-	-	-	0	-	1
44	-	0	-	-	-	-	0	-	-	-	-	0	-	1
45	-	0	-	-	-	-	0	-	-	-	-	0	-	1
46	-	1	-	-	-	-	0	-	-	-	-	0	-	1
47	-	-	-	-	-	-	0	-	-	-	-	0	-	0
48	-	-	-	-	-	-	0	-	-	-	-	0	-	1
49	-	-	-	-	-	-	0	-	-	-	-	0	-	1
50	-	-	-	-	-	-	0	-	-	-	-	1	-	0
51	-	-	-	-	-	-	0	-	-	-	-	0	-	1
52	-	-	-	-	-	-	1	-	-	-	-	0	-	2
53	-	-	-	-	-	-	0	-	-	-	-	0	-	2
54	-	-	-	-	-	-	0	-	-	-	-	0	-	1
55	-	-	-	-	-	-	0	-	-	-	-	0	-	1
56	-	-	-	-	-	-	0	-	-	-	-	1	-	1
57	-	-	-	-	-	-	1	-	-	-	-	0	-	2
58	-	-	-	-	-	-	0	-	-	-	-	1	-	-
59	-	-	-	-	-	-	0	-	-	-	-	0	-	-
60	-	-	-	-	-	-	0	-	-	-	-	0	-	-
61	-	-	-	-	-	-	0	-	-	-	-	0	-	-
62	-	-	-	-	-	-	0	-	-	-	-	1	-	-
63	-	-	-	-	-	-	1	-	-	-	-	1	-	-
64	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	14	2	3	2	5	13	3	18	1	3	8	1	18

Appendix table 4. Length-frequency (nos. measured), by haul, of butter sole collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984.

Fork length (cm)	Haul no.													
	1	5	6	8	9	10	11	16	17	20	36	39	57	88
13	-	-	-	-	-	-	-	-	-	-	-	1	-	-
14	-	-	-	-	-	1	-	-	-	-	-	1	-	-
15	-	-	-	-	-	1	-	-	-	-	-	1	-	-
16	-	-	-	-	-	0	-	-	-	-	-	2	-	-
17	-	-	-	-	-	0	-	-	-	-	-	0	-	-
18	-	-	-	-	-	1	-	-	-	-	-	0	-	-
19	-	-	-	-	-	4	-	-	-	1	-	0	-	-
20	-	-	-	-	-	2	-	-	-	0	-	0	-	-
21	-	-	-	-	-	3	1	-	-	0	-	4	-	-
22	1	-	-	-	-	4	0	-	-	1	-	0	-	-
23	2	-	-	-	-	7	0	-	-	0	-	6	1	-
24	4	-	-	-	-	7	2	-	-	1	-	5	-	-
25	4	-	-	-	-	6	1	-	-	1	-	8	-	-
26	6	-	1	-	-	9	0	-	-	8	-	9	-	-
27	3	-	1	-	-	12	0	-	-	0	1	8	-	-
28	4	1	1	-	-	8	0	-	-	2	-	7	-	-
29	8	0	0	-	-	9	1	-	-	1	-	4	-	1
30	2	0	0	-	-	11	0	-	-	0	-	3	-	-
31	9	0	1	1	1	5	0	-	-	0	-	2	-	-
32	4	2	0	0	0	12	1	-	-	0	-	3	-	-
33	11	2	2	0	0	8	0	-	1	0	-	3	-	-
34	4	0	0	0	1	6	1	-	-	0	-	2	-	-
35	7	0	1	1	-	10	2	-	-	1	-	2	-	-
36	11	0	0	-	-	9	1	-	-	-	-	7	-	-
37	5	1	1	-	-	6	0	-	-	-	-	4	-	-
38	4	-	2	-	-	6	0	-	-	-	-	6	-	-
39	1	-	-	-	-	7	0	-	-	-	-	0	-	-
40	1	-	-	-	-	2	1	1	-	-	-	1	-	-
41	0	-	-	-	-	3	1	1	-	-	-	1	-	-
42	2	-	-	-	-	5	1	-	-	-	-	1	-	-
43	0	-	-	-	-	0	1	-	-	-	-	2	-	-
44	0	-	-	-	-	1	-	-	-	-	-	0	-	-
45	2	-	-	-	-	2	-	-	-	-	-	0	-	-
46	0	-	-	-	-	0	-	-	-	-	-	0	-	-
47	1	-	-	-	-	0	-	-	-	-	-	1	-	-
48	0	-	-	-	-	1	-	-	-	-	-	-	-	-
49	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	97	6	10	2	2	168	14	2	1	16	1	94	1	1

Appendix table 5. Length-frequency (nos. measured), by haul, of Dover sole collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984.

Fork length (cm)	Haul no.																	
	4	5	11	14	20	23	27	33	39	43	45	46	47	51	52	53	64	65
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
16	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	0
17	-	-	-	-	0	-	-	1	-	-	-	-	-	-	-	-	1	0
18	-	-	-	-	2	-	-	1	1	-	-	-	-	-	-	-	1	0
19	-	-	-	-	5	-	-	0	-	-	-	-	-	-	-	-	5	0
20	-	-	-	-	3	-	1	0	-	-	-	-	-	-	-	1	3	0
21	-	-	-	-	1	3	0	1	-	-	1	-	-	-	1	1	4	1
22	-	-	-	-	1	2	0	1	-	-	1	-	-	-	0	1	4	0
23	-	-	-	-	4	1	0	0	-	-	0	-	-	-	0	-	7	1
24	-	-	-	-	1	1	0	0	-	-	1	-	-	-	0	-	4	1
25	-	-	-	-	1	-	1	0	-	-	1	-	-	-	1	-	2	1
26	-	1	-	-	0	-	0	6	-	-	0	-	1	-	0	-	1	1
27	-	0	-	-	3	-	0	1	-	-	0	-	1	1	0	-	1	0
28	-	1	-	-	0	-	1	0	-	1	0	-	2	0	0	-	0	0
29	-	0	-	1	1	-	-	0	-	0	1	-	4	1	1	-	1	0
30	-	0	-	1	-	-	-	1	-	0	1	-	2	0	1	-	0	0
31	-	1	-	1	-	-	-	2	-	1	-	1	4	0	-	-	0	1
32	-	0	-	3	-	-	-	1	-	-	-	-	4	1	-	-	3	-
33	-	0	-	0	-	-	-	-	-	-	-	-	3	-	-	-	-	-
34	-	4	-	4	-	-	-	-	-	-	-	-	4	-	-	-	-	-
35	1	2	-	5	-	-	-	-	-	-	-	-	6	-	-	-	-	-
36	1	4	-	4	-	-	-	-	-	-	-	-	2	-	-	-	-	-
37	1	4	-	3	-	-	-	-	-	-	-	-	7	-	-	-	-	-
38	1	13	-	3	-	-	-	-	-	-	-	-	3	-	-	-	-	-
39	-	5	-	4	-	-	-	-	-	-	-	-	4	-	-	-	-	-
40	-	2	-	3	-	-	-	-	-	-	-	-	5	-	-	-	-	-
41	-	3	-	0	-	-	-	-	-	-	-	-	4	-	-	-	-	-
42	-	1	-	1	-	-	-	-	-	-	-	-	6	-	-	-	-	-
43	-	1	-	1	-	-	-	-	-	-	-	-	11	-	-	-	-	-
44	-	1	-	2	-	-	-	-	-	-	-	-	3	-	-	-	-	-
45	-	0	-	0	-	-	-	-	-	-	-	-	10	-	-	-	-	-
46	-	0	-	1	-	-	-	-	-	-	-	-	7	-	-	-	-	-
47	-	0	-	1	-	-	-	-	-	-	-	-	6	-	-	-	-	-
48	-	0	-	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-
49	-	1	-	0	-	-	-	-	-	-	-	-	1	-	-	-	-	-
50	-	-	-	1	-	-	-	-	-	-	-	-	3	-	-	-	-	-
51	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-
52	-	-	-	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	44	1	42	24	7	3	15	1	2	6	1	112	3	4	3	37	8

Appendix table 5 (cont'd) Dover sole

Fork length (cm)	Haul no. 88	89
15	-	-
16	-	-
17	-	-
18	-	-
19	-	1
20	-	0
21	-	1
22	-	0
23	-	0
24	-	0
25	-	2
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	1	-
32	0	-
33	1	-
34	1	-
35	1	-
36	0	-
37	0	-
38	0	-
39	0	-
40	0	-
41	0	-
42	1	-
43	-	-
44	-	-
45	-	-
46	-	-
47	-	-
48	-	-
49	-	-
50	-	-
51	-	-
52	-	-
53	-	-
54	-	-
55	-	-
56	-	-
57	-	-
58	-	-
59	-	-
60	-	-
61	-	-
62	-	-
63	-	-
Total	5	4

Appendix table 6. Length-frequency (nos. measured), by haul, of English sole collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984. (Nos. caught in parenthesis, when > nos. measured.)

Fork length (cm)	Haul no.																		
	1	2	4	5	6	7	9	10	11	12	13	14	16	19	20	22	23	25	27
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
12	-	-	-	-	-	-	-	1	-	-	-	-	-	1	4	-	-	-	-
13	-	-	-	-	-	-	-	0	-	-	-	-	-	0	9	-	2	-	-
14	-	-	-	-	-	-	-	0	-	-	-	-	-	8	11	-	1	-	-
15	-	-	-	-	-	-	-	0	-	-	-	-	-	1	17	-	1	-	1
16	-	-	-	-	-	-	-	0	-	-	-	-	-	1	24	-	3	-	0
17	-	-	-	-	-	-	-	0	-	-	-	-	-	0	51	2	6	-	1
18	-	-	-	-	-	1	-	0	-	-	-	-	-	8	53	8	8	-	0
19	1	-	-	-	3	2	1	0	-	-	-	-	-	7	64	6	23	-	3
20	2	-	-	1	1	0	3	0	-	-	-	-	-	7	63	7	33	-	7
21	1	-	-	2	0	2	0	0	-	-	-	-	-	5	47	7	35	-	2
22	1	-	2	1	2	0	0	0	-	-	-	-	-	1	46	7	40	-	3
23	0	-	7	2	2	2	1	0	-	-	-	-	-	2	36	3	24	-	2
24	1	-	3	2	5	3	0	1	-	-	-	-	-	2	12	1	26	-	1
25	0	-	5	6	2	2	1	2	-	-	-	-	-	0	11	6	16	-	5
26	0	1	9	8	5	3	2	0	-	-	-	-	-	0	16	4	22	-	0
27	0	1	13	17	3	0	0	4	-	-	-	-	-	1	16	5	22	-	2
28	1	0	14	26	4	2	3	0	-	-	-	-	-	0	10	7	17	-	2
29	1	0	26	33	11	2	2	2	2	-	-	-	-	0	11	2	14	-	3
30	1	0	25	44	16	2	4	2	1	-	-	-	-	1	5	4	10	-	1
31	1	0	28	52	16	2	4	2	0	-	-	-	-	0	8	4	22	-	0
32	1	3	31	51	15	0	7	0	0	-	-	-	-	0	1	3	11	-	0
33	2	1	21	64	27	2	6	2	1	-	2	-	-	1	4	3	10	-	0
34	0	1	17	53	26	2	6	4	1	1	0	4	-	-	5	4	11	-	0
35	5	3	7	41	13	3	8	4	1	0	0	7	-	-	2	3	9	-	1
36	7	5	7	35	23	4	10	1	1	0	0	3	-	-	2	1	5	-	0
37	9	6	6	17	15	0	10	1	3	0	0	11	-	-	3	1	5	-	0
38	8	12	3	8	7	2	6	3	2	0	0	8	1	-	5	1	7	-	0
39	4	12	2	7	11	0	4	6	4	0	1	11	-	-	2	1	5	-	1
40	5	7	1	4	8	1	2	3	5	1	0	7	-	-	1	2	4	-	-
41	1	7	2	2	2	0	4	3	0	0	2	5	-	-	2	4	3	-	-
42	4	8	1	3	1	0	1	3	1	0	-	5	-	-	1	0	3	-	-
43	1	5	-	2	0	2	1	2	0	2	-	6	-	-	1	0	0	1	-
44	2	5	-	1	0	2	1	1	0	0	-	0	-	-	0	1	1	-	-
45	1	5	-	0	0	1	2	1	5	0	-	2	-	-	0	-	0	-	-
46	0	6	-	0	1	2	0	3	3	1	-	2	-	-	0	-	0	-	-
47	1	0	-	1	-	1	3	0	3	1	-	0	-	-	0	-	0	-	-
48	-	2	-	1	-	-	-	0	0	-	-	0	-	-	1	-	1	-	-
49	-	-	-	0	-	-	-	1	2	-	-	1	-	-	-	-	-	-	-
50	-	-	-	0	-	-	-	1	0	-	-	1	-	-	-	-	-	-	-
51	-	-	-	1	-	-	-	-	0	-	-	0	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	0	-	-	2	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Total	61	90	230	485 (3107)	219	45	92	53	40	6	5	75	1	46	545 (578)	97	400	1	35

Appendix table 6 (cont'd) English sole

Fork length (cm)	Haul no.																		
	29	30	31	32	33	36	39	41	43	44	45	46	47	51	52	53	54	55	57
10	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	6
13	20	1	-	-	-	1	2	-	-	1	-	-	-	-	-	5	0	1	8
14	26	0	-	-	-	1	3	-	1	0	-	-	-	-	-	7	0	-	7
15	20	0	-	-	-	1	1	-	2	1	1	-	-	-	-	3	0	-	10
16	21	0	-	-	-	2	4	-	2	3	5	-	-	1	-	13	0	-	12
17	22	0	-	1	-	0	12	-	3	0	9	-	-	7	-	7	1	-	10
18	36	0	-	1	-	0	27	-	4	0	7	-	-	3	-	6	0	-	6
19	67	1	-	0	2	0	33	-	9	1	8	-	-	3	-	12	0	-	5
20	51	1	-	0	2	0	35	-	5	1	8	-	-	8	-	16	1	-	3
21	42	0	-	0	1	0	25	-	2	1	7	-	-	5	1	8	0	-	3
22	35	1	-	0	3	0	15	1	4	0	6	-	-	5	2	14	1	-	6
23	63	1	-	0	0	0	17	0	0	0	6	-	-	5	4	16	2	-	4
24	61	0	-	0	3	0	11	0	2	0	8	3	-	2	3	13	0	-	2
25	59	0	-	0	1	0	17	0	0	0	6	3	-	7	12	15	1	-	7
26	41	4	-	0	5	0	21	0	3	0	4	3	-	5	13	10	0	-	11
27	30	5	-	0	1	0	21	0	2	0	2	2	1	5	10	21	1	-	4
28	21	4	-	0	2	0	14	0	1	0	5	8	0	8	11	11	1	-	6
29	10	3	-	0	1	1	11	0	0	0	3	4	3	5	13	13	-	-	2
30	7	4	-	0	1	0	7	0	0	0	1	3	1	5	16	20	-	-	5
31	6	1	-	0	2	0	10	0	1	0	1	9	2	7	11	15	-	-	5
32	13	1	-	0	2	0	3	1	-	0	1	-	4	6	10	14	-	-	2
33	10	4	-	1	0	1	6	-	1	0	1	1	2	1	7	15	-	-	10
34	6	0	-	0	1	0	4	-	1	0	1	1	2	2	4	9	-	-	2
35	4	1	-	0	2	0	7	-	0	0	1	0	2	0	3	9	-	-	8
36	5	2	-	0	1	0	10	-	1	0	2	2	0	1	2	13	-	-	7
37	3	1	-	1	1	3	7	-	0	0	0	0	2	1	2	9	-	-	0
38	5	0	1	0	2	3	7	-	1	0	0	2	0	1	0	9	-	-	6
39	0	0	0	0	2	0	2	-	1	0	0	0	1	1	0	2	-	-	4
40	4	0	0	0	1	4	5	-	-	0	0	1	-	0	0	10	-	-	1
41	2	1	1	0	2	4	4	-	-	1	0	0	-	0	1	4	-	-	1
42	2	0	1	0	-	1	2	-	-	-	0	-	-	2	0	1	-	-	3
43	0	0	1	0	-	4	2	-	-	-	0	-	-	-	0	2	-	-	2
44	2	0	0	1	-	2	4	-	-	-	0	-	-	-	0	0	-	-	4
45	2	0	0	-	-	3	4	-	-	-	0	-	-	-	0	0	-	-	0
46	1	0	1	-	-	1	2	-	-	-	1	-	-	-	0	0	-	-	2
47	0	0	-	-	-	-	0	-	-	-	-	-	-	-	0	0	-	-	-
48	0	0	-	-	-	-	1	-	-	-	-	-	-	-	1	1	-	-	-
49	2	1	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	723	37	5	5	38	35	360	2	46	9	95	44	16	95	126	325	9	1	174

Appendix table 6 (cont'd) English sole

Fork length (cm)	Haul no.																	
	60	61	62	63	64	65	66	67	71	76	78	79	84	85	86	87	88	89
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
12	-	-	-	-	-	-	-	-	1	-	-	-	2	2	1	-	-	-
13	-	-	-	-	-	-	-	-	1	-	-	1	4	16	-	-	-	-
14	-	-	-	-	-	-	-	-	3	-	-	2	0	7	-	-	-	1
15	-	-	-	-	-	-	-	-	0	-	-	0	4	-	-	-	-	1
16	-	-	-	-	-	-	-	1	0	-	-	1	3	-	-	-	1	1
17	-	-	-	-	-	-	-	4	0	-	-	3	0	-	-	-	0	2
18	-	-	2	-	-	-	1	5	1	-	-	0	0	-	-	-	0	4
19	-	-	4	-	-	4	0	8	-	1	-	2	0	-	-	-	0	6
20	-	-	6	-	1	10	0	6	-	-	-	0	0	-	-	1	4	4
21	-	-	3	-	0	11	2	8	-	-	-	0	0	-	-	2	6	8
22	-	-	6	1	2	9	2	4	-	-	-	1	1	-	-	0	7	12
23	-	-	5	1	6	6	2	4	-	-	-	0	0	-	-	1	7	25
24	-	-	1	6	4	18	1	2	-	-	-	1	0	-	-	0	9	31
25	-	-	4	6	4	13	1	4	-	-	-	-	0	-	-	1	5	38
26	-	-	5	3	2	8	0	4	-	-	-	-	0	-	-	0	5	26
27	-	-	4	6	5	8	0	6	-	-	-	-	0	-	-	1	7	17
28	-	-	3	7	3	15	0	2	-	-	-	-	0	-	-	-	6	16
29	1	-	2	5	2	25	2	2	-	-	-	-	0	-	-	-	15	12
30	0	-	3	6	2	14	4	0	-	-	-	-	0	-	-	-	10	9
31	0	1	2	1	0	16	3	0	-	-	-	-	0	-	-	-	9	11
32	0	0	5	1	4	14	3	0	-	-	-	-	1	-	-	-	8	3
33	1	0	4	3	8	8	4	0	-	-	1	-	-	-	-	-	10	3
34	0	0	2	1	2	11	1	1	-	-	0	-	-	-	-	-	8	2
35	1	0	7	0	1	3	3	1	-	-	0	-	-	-	-	-	6	2
36	0	0	2	0	3	3	6	0	-	-	1	-	-	-	-	-	5	2
37	1	1	4	0	2	10	2	3	-	-	1	-	-	-	-	-	2	1
38	1	0	1	1	1	5	0	-	-	-	-	-	-	-	-	-	4	2
39	-	0	3	-	2	3	4	-	-	-	-	-	-	-	-	-	3	1
40	-	0	1	-	2	2	1	-	-	-	-	-	-	-	-	-	1	1
41	-	1	1	-	3	1	0	-	-	-	-	-	-	-	-	-	-	-
42	-	-	2	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-
43	-	-	1	-	1	1	0	-	-	-	-	-	-	-	-	-	-	-
44	-	-	1	-	1	-	0	-	-	-	-	-	-	-	-	-	-	-
45	-	-	-	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-
46	-	-	-	-	0	-	1	-	-	-	-	-	-	-	-	-	-	-
47	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	5	3	84	48	64	219 (268)	50	65	6	1	3	11	15	26	1	6	138	241

Appendix table 7. Length-frequency (nos. measured), by haul, of flathead sole collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984.

Fork length (cm)	Haul no.												
	6	23	29	30	33	36	46	47	53	60	64	65	89
11	-	-	-	-	-	-	-	-	-	-	-	1	-
12	-	-	-	-	-	-	-	-	-	-	-	0	-
13	-	-	-	-	-	-	-	-	-	-	-	0	-
14	-	-	1	-	-	-	-	-	-	-	-	2	-
15	-	-	2	1	-	-	-	-	-	-	-	1	2
16	-	-	2	0	-	-	-	-	-	-	1	3	0
17	-	-	2	2	-	-	-	2	-	-	1	14	2
18	-	-	0	5	-	-	-	3	1	-	3	16	4
19	-	-	0	3	-	-	1	2	0	-	4	15	1
20	-	-	0	6	1	-	0	1	2	-	1	6	2
21	-	-	1	6	-	-	0	0	0	-	2	3	1
22	-	-	1	7	-	-	0	1	0	-	2	1	3
23	-	-	0	4	-	-	0	2	1	-	1	3	3
24	-	1	0	7	-	-	0	0	0	-	0	3	1
25	-	-	2	7	-	-	0	0	0	-	1	1	2
26	-	-	1	11	-	1	1	0	0	-	0	1	5
27	-	-	4	15	-	-	-	1	0	-	0	3	1
28	-	-	1	11	-	-	-	3	0	-	0	2	0
29	-	-	1	18	-	-	-	3	0	-	1	2	2
30	-	-	0	13	-	-	-	3	0	-	-	0	1
31	-	-	0	12	-	-	-	4	1	1	-	3	-
32	-	-	1	5	-	-	-	5	0	-	-	0	-
33	-	-	-	4	-	-	-	5	1	-	-	0	-
34	-	-	-	2	-	-	-	0	-	-	-	2	-
35	-	-	-	0	-	-	-	6	-	-	-	-	-
36	1	-	-	1	-	-	-	8	-	-	-	-	-
37	0	-	-	-	-	-	-	8	-	-	-	-	-
38	0	-	-	-	-	-	-	5	-	-	-	-	-
39	1	-	-	-	-	-	-	2	-	-	-	-	-
40	-	-	-	-	-	-	-	2	-	-	-	-	-
41	-	-	-	-	-	-	-	4	-	-	-	-	-
Total	2	1	19	140	1	1	2	70	6	1	17	82	30

Appendix table 8. Length-frequency (nos. measured), by haul, of Pacific sanddab collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984.

Fork length (cm)	Haul no.																	
	20	22	23	26	27	29	32	36	39	40	43	44	45	51	53	57	60	61
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
11	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	6	-	1
12	-	-	-	-	-	-	-	-	-	0	-	1	-	-	-	15	-	2
13	-	-	-	-	-	-	-	-	-	0	3	8	-	-	-	56	-	3
14	1	1	-	-	-	1	-	-	1	1	15	10	-	-	-	52	-	3
15	10	1	-	1	-	2	-	-	4	-	9	3	-	-	3	47	-	3
16	17	4	2	1	-	1	-	3	13	-	3	0	-	-	0	23	-	2
17	10	1	1	-	-	1	1	3	14	-	8	1	-	-	0	8	-	-
18	2	0	0	-	-	3	1	1	18	-	6	-	-	-	0	6	-	-
19	1	0	1	-	-	1	-	1	12	-	3	-	-	1	2	7	-	-
20	9	1	3	-	-	0	-	0	10	-	5	-	-	1	5	5	-	-
21	5	0	3	-	-	0	-	0	23	-	4	-	-	0	7	2	-	-
22	1	0	0	-	-	2	-	0	25	-	4	-	-	2	15	0	-	-
23	12	0	6	-	-	1	-	1	32	-	2	-	4	5	29	0	-	-
24	17	0	10	-	-	1	-	0	17	-	3	-	13	2	29	1	-	-
25	14	0	4	-	-	1	-	1	21	-	3	-	22	3	18	-	-	-
26	22	0	12	-	-	4	-	1	29	-	2	-	31	2	14	-	-	-
27	17	0	8	-	5	0	-	1	18	-	2	-	13	5	19	-	-	-
28	16	0	5	-	3	1	-	1	31	-	2	-	28	5	5	-	1	-
29	16	0	2	-	0	1	-	1	26	-	1	-	17	2	2	-	-	-
30	9	1	3	-	2	0	-	1	31	-	-	-	14	1	-	-	-	-
31	6	1	-	-	0	1	-	0	13	-	-	-	7	-	-	-	-	-
32	0	-	-	-	1	1	-	0	6	-	-	-	2	-	-	-	-	-
33	2	-	-	-	1	-	-	1	1	-	-	-	1	-	-	-	-	-
34	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Total	188	10	60	2	12	22	2	16	347	2	75	24	152	29	148	229	1	14

Appendix table 8 (cont'd) Pacific sanddab

Fork length (cm)	Haul no.										
	64	65	67	69	79	80	81	84	85	86	89
8	-	-	-	-	-	-	-	-	2	-	-
9	-	-	-	-	-	-	-	-	1	-	-
10	-	-	-	-	-	-	-	-	0	-	-
11	-	-	-	-	-	-	-	1	0	-	-
12	-	-	-	-	1	-	2	2	1	1	-
13	-	-	-	1	8	-	1	24	6	1	-
14	-	-	-	0	7	-	1	41	4	3	-
15	-	-	-	2	3	-	-	60	2	0	-
16	-	-	-	4	6	-	-	45	1	0	-
17	-	2	1	0	8	-	-	13	-	2	-
18	-	0	1	0	9	-	-	7	-	0	-
19	-	0	1	0	0	-	-	6	-	0	-
20	-	1	2	0	6	-	-	4	-	0	1
21	3	0	2	1	2	-	-	1	-	1	0
22	2	1	6	-	4	-	-	1	-	0	1
23	4	4	6	-	3	1	-	-	-	0	0
24	12	6	18	-	1	0	-	-	-	1	0
25	9	9	10	-	1	1	-	-	-	-	0
26	4	6	9	-	1	1	-	-	-	-	0
27	12	13	11	-	1	-	-	-	-	-	3
28	7	14	8	-	-	-	-	-	-	-	-
29	6	5	-	-	-	-	-	-	-	-	-
30	1	1	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-	-	-	-	-
Total	60	62	75	8	61	3	5	205	17	9	5

Appendix table 9. Length-frequency (nos. measured), by haul, of rex sole collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984.

Fork length (cm)	Haul no.																	
	1	2	4	5	6	9	10	11	13	14	19	20	23	27	33	43	45	46
10	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	2	0	-	2	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	5	0	4	3	-	1	-
17	1	-	-	-	-	-	-	-	-	-	-	9	3	13	7	1	1	-
18	0	-	-	-	-	-	-	-	-	-	-	19	0	14	9	0	2	-
19	0	-	-	-	-	-	-	-	-	-	-	28	0	8	7	0	4	-
20	0	-	-	-	-	-	-	-	-	-	-	22	3	3	5	0	1	1
21	0	-	-	-	-	-	-	-	-	-	1	18	3	2	11	1	0	0
22	0	-	-	-	-	-	-	-	-	-	0	18	0	1	35	0	0	0
23	0	-	-	1	-	-	-	-	-	-	0	23	0	5	50	0	9	0
24	0	-	-	3	1	-	-	-	-	-	0	15	1	7	51	0	10	1
25	0	-	-	0	0	-	-	-	-	1	0	21	2	6	38	1	9	3
26	0	-	3	1	1	1	-	-	-	0	1	18	5	2	41	-	6	4
27	0	-	5	2	1	0	-	-	1	3	-	8	2	0	31	-	5	1
28	0	1	6	5	4	1	-	-	0	0	-	8	1	4	33	-	10	9
29	0	1	3	5	9	3	-	-	0	5	-	2	1	5	26	-	7	8
30	1	5	5	4	7	2	-	-	2	3	-	4	-	3	24	-	7	8
31	0	1	2	11	9	3	-	1	0	7	-	4	-	-	10	-	6	2
32	0	7	1	8	9	6	-	2	0	4	-	-	-	-	4	-	2	6
33	0	4	3	14	12	9	-	2	1	5	-	-	-	-	3	-	4	5
34	0	4	3	10	6	7	1	0	1	4	-	-	-	-	3	-	3	1
35	0	7	2	9	7	6	1	0	0	1	-	-	-	-	3	-	5	4
36	1	6	0	12	6	3	-	0	1	4	-	-	-	-	3	-	1	2
37	0	6	2	13	8	4	-	1	0	9	-	-	-	-	1	-	1	1
38	1	4	1	14	1	4	-	1	0	7	-	-	-	-	-	-	-	1
39	1	7	0	18	3	1	-	0	0	5	-	-	-	-	-	-	-	-
40	-	2	0	13	1	0	-	0	0	4	-	-	-	-	-	-	-	-
41	-	1	0	8	1	4	-	0	0	2	-	-	-	-	-	-	-	-
42	-	1	0	0	-	4	-	1	0	2	-	-	-	-	-	-	-	-
43	-	1	1	1	-	3	-	-	0	3	-	-	-	-	-	-	-	-
44	-	1	-	2	-	1	-	-	0	-	-	-	-	-	-	-	-	-
45	-	-	-	0	-	1	-	-	1	-	-	-	-	-	-	-	-	-
46	-	-	-	0	-	1	-	-	-	-	-	-	-	-	-	-	-	-
47	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Total	5	59	35	155	86	67	2	8	7	69	2	227	23	77	400	3	94	58

Appendix table 9 (cont'd) rex sole

Fork length (cm)	Haul no.													
	47	51	52	53	57	62	63	64	65	66	78	79	88	89
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	1	-	-	-	-	-
13	-	-	-	-	-	-	-	-	2	-	-	-	-	-
14	-	-	-	-	-	-	-	3	1	-	-	-	-	-
15	-	1	-	-	-	-	-	5	5	-	-	-	-	1
16	-	0	-	1	-	-	-	12	8	-	-	-	-	0
17	-	2	-	1	-	-	-	8	5	-	-	-	1	0
18	-	0	-	3	-	-	-	7	3	-	-	-	0	1
19	-	2	-	3	-	-	-	13	5	-	-	2	3	1
20	-	2	1	15	2	-	-	17	7	-	-	2	1	0
21	-	6	2	8	-	-	-	33	8	-	-	1	3	0
22	3	10	1	0	-	-	1	52	17	-	-	1	5	1
23	3	11	6	0	-	-	0	89	27	-	-	-	10	1
24	6	13	5	3	-	1	0	126	34	-	-	-	25	0
25	6	11	13	2	-	0	2	149	36	-	-	-	20	1
26	8	15	15	6	-	1	1	132	33	1	-	-	10	0
27	10	13	17	1	-	1	1	127	38	1	1	-	9	0
28	6	17	8	3	-	0	4	109	36	1	0	-	10	1
29	9	15	8	1	-	1	0	103	31	1	0	-	15	-
30	3	13	7	0	-	0	1	57	17	0	2	-	13	-
31	7	5	4	0	-	0	-	34	19	1	1	-	6	-
32	12	2	2	0	-	2	-	28	11	1	2	-	2	-
33	10	3	3	1	-	0	-	18	8	0	2	-	2	-
34	4	0	0	2	-	0	-	12	5	1	2	-	1	-
35	6	0	0	-	-	0	-	8	1	-	3	-	1	-
36	7	2	0	-	-	0	-	0	3	-	2	-	-	-
37	6	0	0	-	-	0	-	2	1	-	1	-	-	-
38	1	0	0	-	-	0	-	-	-	-	-	-	-	-
39	4	1	1	-	-	0	-	-	-	-	-	-	-	-
40	-	1	-	-	-	1	-	-	-	-	-	-	-	-
41	-	-	-	-	-	0	-	-	-	-	-	-	-	-
42	-	-	-	-	-	0	-	-	-	-	-	-	-	-
43	-	-	-	-	-	0	-	-	-	-	-	-	-	-
44	-	-	-	-	-	1	-	-	-	-	-	-	-	-
45	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	111	145	93	50	2	8	10	1144	362	7	16	6	137	7

Appendix table 10. Length-frequency (nos. measured), by haul, of rock sole collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984.

Fork length (cm)	Haul no.																	
	1	5	6	8	10	11	16	17	18	19	20	22	23	24	25	26	27	29
12	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
15	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	-	-	-
16	-	-	-	1	-	-	-	-	-	5	-	-	-	-	-	1	-	-
17	-	-	-	1	-	-	-	-	-	2	-	1	-	-	-	0	-	3
18	-	-	-	2	-	-	-	-	-	11	2	0	1	-	-	0	-	0
19	-	-	-	2	-	-	-	-	1	4	3	0	2	-	-	0	-	5
20	-	-	-	1	-	-	-	-	0	12	2	0	2	-	-	0	1	3
21	-	-	-	0	-	-	-	-	0	7	1	0	3	3	-	0	0	8
22	-	-	-	2	-	-	-	-	0	13	3	0	0	0	-	0	0	5
23	-	-	-	2	-	-	-	-	0	7	4	0	3	1	-	0	0	4
24	-	-	-	4	-	-	-	-	0	16	2	0	1	0	-	0	0	9
25	-	-	-	1	-	-	-	-	0	18	7	0	2	1	-	0	0	3
26	-	-	-	3	-	-	-	-	0	9	4	0	0	0	-	0	0	1
27	-	-	-	1	-	-	-	-	0	8	5	0	3	0	-	0	0	0
28	-	-	-	0	-	-	-	-	0	13	3	0	2	0	-	0	0	1
29	-	-	-	1	-	-	-	-	0	1	4	0	2	0	-	0	0	0
30	-	-	-	3	-	-	-	-	0	3	0	0	1	0	-	1	0	0
31	-	1	-	4	-	-	-	-	0	1	2	0	3	2	-	0	0	2
32	-	-	-	11	1	-	-	-	0	0	1	0	2	2	-	3	0	2
33	-	-	-	10	-	-	-	-	0	0	2	0	4	2	-	2	0	3
34	-	-	-	10	-	-	-	-	0	0	1	0	3	2	-	0	0	8
35	-	-	-	9	-	-	-	-	0	0	2	0	4	4	-	1	0	0
36	-	-	-	7	-	1	-	-	0	0	1	0	3	2	-	0	0	1
37	-	-	-	8	-	0	-	-	1	0	2	0	4	1	-	2	0	0
38	-	-	-	10	-	0	-	-	0	0	0	0	11	2	-	0	0	1
39	1	-	-	13	-	0	-	-	1	0	2	0	5	4	-	0	0	0
40	0	-	-	4	-	0	-	-	0	0	0	0	3	5	-	0	0	0
41	0	-	-	11	-	0	-	-	1	0	1	1	5	2	-	0	0	0
42	0	-	-	8	-	0	1	-	0	0	0	0	3	0	-	0	0	0
43	2	-	-	5	-	0	0	-	0	0	2	0	1	0	-	0	0	1
44	0	-	-	5	-	1	0	-	0	1	1	0	0	0	-	1	0	1
45	0	-	-	2	-	0	0	1	0	0	1	0	0	0	-	0	0	0
46	1	-	1	2	-	0	0	0	0	0	0	0	0	0	-	0	0	0
47	0	-	0	1	-	0	1	0	0	0	0	0	0	0	-	0	0	0
48	0	-	0	2	-	0	0	0	0	0	0	0	0	0	-	0	0	0
49	0	-	0	2	-	0	0	0	0	0	0	0	0	0	-	0	0	0
50	0	-	0	0	-	0	0	0	0	0	0	0	0	0	-	0	0	0
51	0	-	0	0	-	0	0	0	0	0	0	0	0	0	-	0	0	0
52	0	-	0	0	-	0	0	0	0	0	0	0	0	0	-	0	0	0
Total	4	1	1	149	1	2	2	1	9	140	63	14	70	32	2	20	6	75

Appendix table 10 (cont'd) rock sole

Fork length (cm)	Haul no.																	
	30	31	32	33	35	37	39	40	41	42	43	44	45	47	48	49	50	53
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-	-
14	-	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	-
15	-	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	-
16	-	-	-	1	-	-	4	-	-	-	-	1	-	-	-	-	-	1
17	-	-	-	-	-	-	5	-	-	1	-	0	-	-	-	-	-	1
18	-	-	-	-	-	-	16	-	-	1	-	1	-	-	-	-	-	2
19	-	1	1	-	-	-	8	-	-	1	3	2	-	-	-	-	1	0
20	-	0	0	-	-	-	10	1	-	0	2	1	-	-	-	-	0	0
21	-	1	0	-	-	-	9	0	1	0	3	2	1	1	-	-	0	0
22	-	0	0	-	-	-	6	0	0	1	1	2	0	0	-	-	0	0
23	-	2	0	-	-	-	5	0	1	1	3	2	0	0	-	-	0	0
24	-	0	0	-	-	-	7	1	0	0	1	4	0	0	-	-	0	0
25	-	1	0	-	1	-	1	1	1	1	3	2	0	0	-	-	0	0
26	-	0	0	-	2	-	0	1	0	0	0	4	0	0	-	-	0	0
27	-	0	0	-	0	-	1	1	1	1	0	2	0	0	-	-	0	0
28	-	0	0	-	1	-	0	0	0	0	0	4	0	0	-	-	0	0
29	-	0	0	-	-	-	0	1	0	2	0	2	0	0	-	-	0	0
30	-	1	0	-	-	-	1	1	1	1	0	1	0	0	-	-	0	0
31	-	0	0	-	-	-	0	0	0	0	0	4	0	0	-	-	0	0
32	-	1	2	-	-	-	0	1	0	2	0	3	0	0	-	-	0	0
33	-	-	0	-	-	-	0	1	0	1	0	5	0	0	-	-	0	0
34	-	-	0	-	-	-	1	1	0	0	1	4	0	0	-	-	0	0
35	1	-	0	-	-	-	0	2	0	2	0	1	0	0	-	-	0	0
36	0	-	0	-	-	-	0	2	0	1	0	2	0	0	-	-	0	0
37	0	-	0	-	-	-	1	2	0	0	1	1	0	0	-	-	0	0
38	0	-	0	-	-	-	0	2	0	0	0	0	0	0	-	-	0	0
39	0	-	0	-	-	-	5	1	0	1	0	2	0	0	-	-	0	0
40	0	-	0	-	-	-	1	2	0	2	0	1	0	0	-	-	0	0
41	0	-	0	-	-	-	3	2	0	1	0	0	0	0	-	-	0	0
42	0	-	0	-	-	-	0	2	0	2	0	1	0	0	-	-	0	0
43	1	-	1	-	-	1	1	1	1	3	0	0	0	0	-	-	0	0
44	-	-	-	-	-	-	0	3	0	2	0	1	0	0	-	-	0	0
45	-	-	-	-	-	-	0	0	2	0	0	0	0	0	-	-	0	0
46	-	-	-	-	-	-	0	1	0	0	0	0	0	0	-	-	0	0
47	-	-	-	-	-	-	0	0	1	1	0	0	0	0	-	-	0	0
48	-	-	-	-	-	-	0	1	0	0	0	0	0	0	-	-	0	0
49	-	-	-	-	-	-	0	0	0	0	0	0	0	0	-	-	0	0
50	-	-	-	-	-	-	0	0	0	0	0	0	0	0	-	-	0	0
51	-	-	-	-	-	-	0	0	0	0	0	0	0	0	-	-	0	0
52	-	-	-	-	-	-	0	0	0	0	0	0	0	0	1	-	0	0
Total	2	9	9	1	4	1	91	27	15	24	20	52	2	1	18	4	4	9

Appendix table 10 (cont'd) rock sole

Fork length (cm)	Haul no.																	
	54	55	57	58	60	61	62	68	69	70	71	76	77	78	79	80	82	83
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	5	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-
20	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-
21	8	1	-	-	-	-	-	1	-	-	-	-	-	-	-	0	1	-
22	9	1	-	-	-	-	-	0	1	-	-	-	-	-	-	0	1	-
23	8	1	-	-	-	-	-	0	1	-	-	-	-	-	-	0	0	-
24	7	0	-	-	-	-	-	0	2	-	-	-	-	-	-	0	0	-
25	5	0	-	-	-	-	-	1	0	-	-	-	-	-	-	1	0	-
26	5	1	-	-	-	-	-	0	0	1	-	-	-	-	-	0	0	-
27	4	0	1	-	-	-	-	0	0	0	-	-	-	-	-	1	0	-
28	4	0	0	-	1	-	-	0	1	0	-	-	-	-	-	0	0	-
29	5	1	0	-	0	-	-	0	1	0	-	-	-	-	1	0	0	-
30	3	2	0	-	0	-	-	0	0	0	-	-	1	-	0	1	0	-
31	7	1	0	1	0	-	-	1	0	0	-	-	-	-	0	0	0	1
32	3	3	0	0	0	-	-	1	0	0	-	-	-	-	0	1	0	0
33	3	2	0	0	0	-	-	1	1	0	1	-	-	-	0	0	0	0
34	5	4	1	0	1	-	-	0	0	1	0	-	-	-	0	1	0	0
35	8	1	-	0	0	-	-	0	0	0	0	-	-	-	0	1	0	0
36	7	5	-	0	1	-	-	1	0	1	0	-	-	-	1	0	0	0
37	2	1	-	0	1	-	-	-	0	1	0	-	-	-	0	0	2	0
38	2	0	-	0	-	-	-	-	0	1	0	-	-	-	0	0	2	0
39	3	0	-	0	-	1	-	-	0	5	0	-	-	1	1	0	0	0
40	3	3	-	0	-	0	-	-	0	3	1	-	-	0	0	0	1	0
41	1	0	-	2	-	1	1	-	0	4	0	-	-	0	0	1	3	0
42	1	1	-	-	-	-	0	-	1	1	1	-	-	1	2	-	1	0
43	2	1	-	-	-	-	0	-	0	2	0	-	-	-	0	-	1	0
44	0	0	-	-	-	-	1	-	2	1	2	-	-	-	1	-	1	1
45	2	1	-	-	-	-	-	-	0	2	0	-	-	-	0	-	1	1
46	2	-	-	-	-	-	-	-	2	5	0	-	-	-	0	-	4	4
47	1	-	-	-	-	-	-	-	1	1	0	-	-	-	1	-	2	2
48	-	-	-	-	-	-	-	-	1	3	0	-	-	-	1	-	0	0
49	-	-	-	-	-	-	-	-	-	2	1	-	-	-	1	-	2	2
50	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
51	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
Total	117	30	2	3	3	2	2	6	14	40	6	1	1	2	9	8	23	2

Appendix table 10 (cont'd) rock sole

Fork length (cm)	Haul no.					
	84	85	86	87	88	89
12	-	-	-	1	-	-
13	-	-	-	0	-	-
14	-	-	-	0	-	-
15	-	-	-	0	-	-
16	-	-	-	0	-	1
17	-	-	-	1	-	1
18	-	-	-	0	-	1
19	-	-	-	1	-	1
20	-	-	-	1	-	0
21	-	-	-	0	-	0
22	-	1	-	1	1	1
23	-	0	1	1	0	1
24	-	0	0	1	0	0
25	-	0	0	0	0	0
26	-	0	0	0	0	0
27	-	0	0	0	0	0
28	-	0	0	0	0	0
29	-	0	0	0	1	0
30	-	0	0	0	0	0
31	-	0	0	0	0	0
32	-	0	1	1	0	0
33	-	0	0	1	0	0
34	-	0	1	1	0	1
35	-	0	1	0	1	0
36	-	0	1	1	0	0
37	1	0	3	0	0	2
38	-	0	2	1	0	0
39	-	1	0	1	1	1
40	-	0	2	1	-	-
41	-	1	0	1	-	-
42	-	0	2	1	-	-
43	-	0	0	-	-	-
44	-	0	1	-	-	-
45	-	1	1	-	-	-
46	-	0	1	-	-	-
47	-	0	-	-	-	-
48	-	1	-	-	-	-
49	-	1	-	-	-	-
50	-	-	-	-	-	-
51	-	-	-	-	-	-
52	-	-	-	-	-	-
Total	1	6	17	14	4	10

Appendix table 11. Length-frequency (nos. measured), by haul, of Sebastes alutus collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984.

Fork length (cm)	Haul no.				
	33	47	66	75	88
7	-	-	-	3	-
8	-	-	-	2	-
9	-	-	-	1	-
10	-	-	1	0	-
11	-	-	-	1	-
12	-	-	-	6	-
13	-	3	-	4	1
14	-	8	-	7	-
15	-	1	-	0	-
16	1	0	-	1	-
17	0	2	-	0	-
18	1	16	-	0	-
19	-	25	-	0	-
20	-	15	-	1	-
21	-	11	-	0	-
22	-	5	-	0	-
23	-	8	-	1	-
24	-	5	-	-	-
25	-	4	-	-	-
26	-	1	-	-	-
27	-	2	-	-	-
28	-	0	-	-	-
29	-	0	-	-	-
30	-	4	-	-	-
31	-	2	-	-	-
32	-	0	-	-	-
33	-	0	-	-	-
34	-	0	-	-	-
35	-	0	-	-	-
36	-	0	-	-	-
37	-	0	-	-	-
38	-	0	-	-	-
39	-	0	-	-	-
40	-	0	-	-	-
41	-	0	-	-	-
42	-	0	-	-	-
43	-	0	-	-	-
44	-	0	-	-	-
45	-	0	-	-	-
46	-	0	-	-	-
47	-	0	-	-	-
48	-	0	-	-	-
49	-	1	-	-	-
Total	2	113	1	27	1

Appendix table 12. Length-frequency (nos. measured), by haul, of Sebastes wilsoni collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984.

Fork length (cm)	Haul no. 45	46
11	-	1
12	-	5
13	1	17
14	-	33
15	-	17
16	-	10
17	-	12
18	-	23
19	-	25
20	-	9
21	-	4
22	-	2
23	-	1
Total	1	159

Appendix table 13. Length-frequency (nos. measured), by haul, of Pacific cod collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984. (Nos. caught in parenthesis, when > nos. measured.)

Fork length (cm)	Haul no.																	
	1	2	4	5	6	7	9	10	11	12	13	14	15	19	20	22	23	27
20	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-
21	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	0	-
22	-	-	1	-	-	-	-	-	-	-	-	-	-	4	-	-	1	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	0	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	1	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	1	2	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	1	0	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	59	3	1	1	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	78	4	1	0	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	79	6	1	0	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	71	4	0	0	-
31	-	-	-	-	-	-	-	-	-	-	-	-	-	55	3	0	0	-
32	-	-	-	-	-	-	-	-	-	-	-	-	-	52	1	0	0	1
33	-	-	-	-	-	-	-	-	-	-	-	-	-	27	0	0	1	-
34	-	-	-	-	-	-	-	-	-	-	-	-	-	5	1	0	0	-
35	-	-	-	-	-	-	-	-	-	-	-	-	-	6	0	0	1	-
36	-	-	-	-	-	-	-	-	-	1	-	-	-	4	0	0	0	-
37	-	-	-	-	-	-	-	-	1	0	-	-	-	1	0	0	0	-
38	-	-	-	-	-	-	-	-	0	1	-	-	-	3	1	0	0	-
39	1	-	-	-	-	-	-	-	0	1	-	-	-	0	0	0	0	-
40	0	3	-	-	-	-	-	-	0	0	-	-	-	1	2	0	0	-
41	1	2	-	-	-	-	-	1	0	0	-	-	-	1	1	0	0	-
42	0	3	-	-	-	-	-	1	1	0	-	-	-	0	0	0	0	-
43	0	3	-	-	-	-	-	0	2	0	-	-	-	2	0	0	1	-
44	1	4	-	-	-	-	-	0	0	0	-	-	-	0	1	0	0	-
45	1	7	-	1	1	-	-	0	1	1	-	1	-	0	0	0	0	-
46	0	8	-	0	0	-	-	0	0	3	-	1	-	0	0	0	3	-
47	0	3	-	0	0	-	-	0	0	2	-	2	-	1	0	0	0	-
48	1	2	-	1	0	-	1	0	1	3	1	1	-	1	0	0	0	-
49	1	2	-	0	0	-	0	0	0	1	0	-	-	-	0	0	0	-
50	0	3	-	1	0	-	0	0	1	2	0	-	-	-	0	0	0	-
51	1	3	-	0	0	-	1	0	0	0	0	-	-	-	0	0	0	-
52	1	3	-	1	0	-	1	0	0	0	0	-	-	-	0	0	0	-
53	-	1	-	0	0	-	0	0	0	2	0	-	-	-	0	0	0	-
54	-	0	-	0	0	-	0	0	0	0	0	-	-	-	0	0	0	-
55	-	2	-	0	0	-	0	1	0	0	0	-	-	-	0	0	0	-
56	-	0	-	0	0	-	0	0	0	0	0	-	-	-	0	0	0	-
57	-	2	-	0	0	-	0	0	0	0	0	-	-	-	0	0	0	-
58	-	3	-	0	0	-	0	0	0	1	0	-	-	-	1	0	0	-
59	-	1	-	1	0	-	0	1	0	1	0	-	-	-	0	0	0	-
60	-	0	-	-	0	-	1	1	0	0	0	-	-	-	0	0	0	-
61	-	0	-	-	0	-	0	0	0	0	0	-	-	-	0	0	0	-
62	-	1	-	-	0	-	0	0	0	0	0	-	-	-	0	0	0	-
63	-	0	-	-	0	-	0	0	0	0	0	-	-	-	0	0	0	-
64	-	0	-	-	0	-	0	0	0	0	0	-	-	-	0	0	1	-
65	-	0	-	-	0	-	0	0	0	1	0	-	-	-	0	0	0	-
66	-	0	-	-	1	-	0	0	0	-	0	-	1	-	0	0	0	-
67	-	0	-	-	0	-	0	0	0	-	0	-	-	-	0	0	0	-
68	-	0	-	-	0	-	0	0	0	-	0	-	-	-	0	0	0	-
69	-	1	-	-	0	-	0	0	1	-	1	-	-	-	0	0	0	-
70	-	0	-	-	0	-	0	0	-	-	-	-	-	-	0	0	0	-
71	-	1	-	-	0	-	0	1	-	-	-	-	-	-	0	0	0	-
72	-	0	-	-	0	-	0	0	-	-	-	-	-	-	0	0	0	-
73	-	2	-	-	0	-	0	0	-	-	-	-	-	-	0	0	1	-
74	-	1	-	-	0	-	0	0	-	-	-	-	-	-	0	0	0	-
75	-	-	-	-	0	-	0	0	-	-	-	-	-	-	0	0	0	-
76	-	-	-	-	0	1	0	0	-	-	-	-	-	-	0	0	0	-
77	-	-	-	-	0	-	0	0	-	-	-	-	-	-	0	0	0	-
78	-	-	-	-	0	-	0	0	-	-	-	-	-	-	0	0	0	-
79	-	-	-	-	0	-	0	0	-	-	-	-	-	-	0	0	0	-
80	-	-	-	-	1	-	0	0	-	-	-	-	-	-	0	0	0	-
81	-	-	-	-	-	-	0	0	-	-	-	-	-	-	0	0	0	-
82	-	-	-	-	-	-	0	0	-	-	-	-	-	-	0	0	0	-
83	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Total	8	63	1	4	4	3	5	9	7	20	4	5	1	516 (1245)	29	6	14	1

Appendix table 13 (cont'd) Pacific cod

Fork length (cm)	Haul no.																	
	29	31	33	36	39	40	43	45	46	47	51	52	54	62	63	65	67	76
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-
26	1	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-
27	0	-	-	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-
28	0	-	-	0	3	-	-	-	-	-	-	-	-	-	-	-	-	-
29	1	-	-	0	9	-	-	1	-	-	-	-	-	-	-	-	-	-
30	0	-	-	1	8	-	-	0	-	-	-	-	-	-	-	-	-	-
31	1	1	-	-	6	-	-	0	-	-	-	-	-	-	-	1	-	-
32	0	0	-	-	4	-	-	0	-	-	-	-	-	-	-	0	-	-
33	1	0	-	-	3	-	-	0	-	-	-	-	-	-	-	0	-	-
34	1	0	-	-	2	-	-	0	-	-	-	-	-	-	-	0	1	-
35	1	0	-	-	1	-	-	0	-	-	-	-	-	-	1	0	0	-
36	2	0	-	-	1	-	-	0	-	-	-	-	2	-	0	0	0	-
37	5	1	-	-	3	-	-	0	-	-	-	-	-	2	0	0	1	-
38	1	1	1	-	0	-	-	0	-	-	-	-	-	1	2	0	0	-
39	3	0	0	-	3	-	-	0	-	-	-	1	-	-	0	0	0	-
40	4	0	0	-	0	-	-	0	-	-	-	0	-	-	2	0	0	-
41	0	1	0	-	1	-	-	0	-	-	-	0	-	-	5	0	0	1
42	4	0	0	-	1	-	-	0	-	-	-	1	-	-	6	0	0	0
43	3	1	0	-	2	-	-	0	-	-	-	0	-	-	6	0	0	0
44	2	1	0	-	1	-	-	0	-	-	-	0	-	-	8	0	0	0
45	0	2	0	-	0	-	-	0	-	-	-	0	-	-	2	0	0	0
46	1	0	0	-	1	-	-	0	-	-	-	0	-	-	5	0	0	0
47	-	1	0	-	0	-	-	0	-	-	-	0	-	-	6	0	0	0
48	-	0	0	-	1	-	-	0	-	-	-	0	-	-	4	0	0	0
49	-	1	0	-	0	-	-	0	-	-	-	0	-	-	2	0	0	0
50	-	-	0	-	0	-	-	0	-	-	-	0	-	-	3	0	0	0
51	-	-	0	-	0	-	-	0	-	-	-	0	-	-	3	0	0	0
52	-	-	0	-	0	-	-	0	-	-	-	0	-	-	2	0	0	0
53	-	-	0	-	0	-	-	0	-	-	-	2	-	-	4	0	0	0
54	-	-	0	-	0	-	-	0	-	-	-	0	-	-	1	0	0	0
55	-	-	0	-	0	-	-	0	-	-	-	0	-	-	2	0	0	0
56	-	-	0	-	0	-	-	0	-	-	-	0	-	-	4	0	0	0
57	-	-	0	-	0	-	-	0	-	-	-	0	-	-	5	0	0	0
58	-	-	0	-	0	-	-	0	-	-	-	0	-	-	5	0	0	0
59	-	-	0	-	0	-	-	0	-	-	-	0	-	-	7	0	0	0
60	-	-	0	-	0	-	-	0	-	-	-	0	-	-	5	0	0	0
61	-	-	0	-	0	1	-	0	-	-	-	0	-	-	2	0	0	0
62	-	-	0	-	0	-	-	0	-	-	-	0	-	-	1	0	0	0
63	-	-	1	-	0	-	-	0	-	-	-	0	-	-	1	0	0	0
64	-	-	0	-	0	-	-	0	-	-	-	0	-	-	1	0	0	0
65	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
66	-	-	0	-	0	-	-	0	-	-	-	0	-	-	1	0	0	0
67	-	-	0	-	1	-	-	0	-	-	-	0	-	-	0	0	0	0
68	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
69	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
70	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
71	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
72	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
73	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
74	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
75	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
76	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	1
77	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
78	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
79	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
80	-	-	0	-	0	-	-	0	-	-	-	0	-	-	1	0	0	0
81	-	-	0	-	0	-	-	0	-	-	-	0	-	-	1	0	0	0
82	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
83	-	-	0	-	0	-	-	0	-	-	-	0	-	-	0	0	0	0
Total	30	8	5	5	63	1	4	8	17	7	9	16	2	3	125	2	2	7

Appendix table 13 (cont'd) Pacific cod

Fork length (cm)	Haul no. 78	88	89
20	-	-	-
21	-	-	-
22	-	-	-
23	-	-	-
24	-	-	-
25	-	-	-
26	-	-	-
27	-	-	-
28	-	-	-
29	-	-	-
30	-	-	-
31	-	-	-
32	-	-	-
33	-	-	-
34	-	-	-
35	-	-	-
36	-	-	-
37	-	-	-
38	-	-	-
39	-	-	-
40	-	-	-
41	-	1	1
42	-	0	0
43	-	0	0
44	-	0	1
45	-	0	0
46	-	0	0
47	1	0	1
48	0	0	-
49	0	0	-
50	0	0	-
51	0	0	-
52	0	0	-
53	0	0	-
54	0	0	-
55	0	0	-
56	0	0	-
57	0	0	-
58	0	0	-
59	0	0	-
60	0	0	-
61	0	1	-
62	0	0	-
63	0	0	-
64	0	1	-
65	0	0	-
66	0	0	-
67	0	0	-
68	0	1	-
69	1	-	-
70	0	-	-
71	0	-	-
72	0	-	-
73	0	-	-
74	1	-	-
75	-	-	-
76	-	-	-
77	-	-	-
78	-	-	-
79	-	-	-
80	-	-	-
81	-	-	-
82	-	-	-
83	-	-	-
Total	3	4	3

Appendix table 14. Length-frequency (nos. measured), by haul, of sablefish collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984. (Nos. caught in parenthesis, when > nos. measured.)

Fork length (cm)	Haul no.																	
	1	4	5	6	19	20	22	23	27	29	30	33	42	45	46	47	52	53
15	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	23	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	45	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	39	-	-	-	-	-	-	-	-
19	1	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	20	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	27	-	-	-	-	-	-	-	-
26	-	-	-	-	1	-	-	-	-	30	-	-	-	-	-	-	-	-
27	-	-	-	-	0	5	-	-	2	39	-	-	-	-	-	-	-	-
28	-	-	-	-	7	7	-	-	1	69	-	-	-	-	-	-	-	-
29	-	-	-	-	14	15	-	-	3	87	1	1	-	-	-	-	-	-
30	-	-	-	-	27	21	1	1	9	126	2	1	-	-	-	-	-	-
31	-	-	-	-	50	44	2	5	10	76	0	1	-	1	-	-	-	-
32	-	-	-	-	59	56	0	3	8	56	0	1	-	0	-	-	-	-
33	-	-	-	-	86	52	2	5	3	28	1	2	-	0	-	-	1	-
34	-	1	-	-	62	29	2	2	6	8	-	3	-	0	-	-	2	2
35	-	2	-	2	47	24	0	3	7	9	-	1	1	1	3	1	2	1
36	-	-	-	0	29	22	2	1	3	2	-	3	-	0	3	1	3	0
37	-	-	1	0	15	6	-	-	-	-	-	2	-	1	4	1	-	1
38	-	-	0	2	6	2	-	-	-	-	-	0	-	-	2	0	-	-
39	-	-	0	-	3	2	-	-	-	-	-	0	-	-	1	2	-	-
40	-	-	1	-	2	-	-	-	-	-	-	1	-	-	1	0	-	-
41	-	-	0	-	1	-	-	-	-	-	-	2	-	-	-	0	-	-
42	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
43	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	3	3	4	409	285 (310)	9	20	52	731	4	18	1	3	14	6	8	4

Appendix table 14 (cont'd) sablefish

Fork length (cm)	Haul no.							
	63	65	66	67	78	79	88	89
15	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	1
29	-	-	-	-	-	-	-	1
30	-	-	-	-	-	-	2	0
31	-	1	-	-	-	-	5	4
32	-	-	-	-	-	-	13	0
33	-	-	1	-	-	-	28	0
34	-	-	1	3	-	-	32	0
35	-	-	0	-	1	-	22	1
36	1	-	1	-	1	-	26	-
37	2	-	-	-	-	-	11	-
38	-	-	-	-	-	1	10	-
39	-	-	-	-	-	-	9	-
40	-	-	-	-	-	-	1	-
41	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-	-
44	-	-	-	-	-	-	-	-
45	-	-	-	-	-	-	-	-
46	-	-	-	-	-	-	-	-
Total	3	1	3	3	2	1	153 (573)	7

Appendix table 15. Length-frequency (nos. measured), by haul, of walleye pollock collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28- June 17, 1984.

Fork length (cm)	Haul no.																	
	1	2	4	5	6	7	9	13	14	20	23	27	30	33	45	46	47	52
15	-	-	-	-	-	-	-	-	-	3	1	1	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	10	0	0	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	15	0	2	-	-	-	-	-	1
18	1	-	-	-	-	-	-	-	-	14	2	0	-	1	-	-	-	0
19	0	-	-	-	-	-	-	-	-	11	3	0	-	1	-	-	-	1
20	0	-	-	-	-	-	-	-	-	5	0	0	-	0	-	-	-	1
21	0	-	-	-	-	-	-	-	-	5	0	0	-	1	1	-	-	-
22	0	-	-	-	-	-	-	-	-	2	0	0	-	2	-	-	-	-
23	0	-	-	-	-	-	-	-	-	4	0	0	-	7	-	-	-	-
24	0	-	-	-	-	-	-	-	-	3	0	0	-	13	-	-	-	-
25	1	-	2	-	-	1	-	-	-	2	0	0	-	16	-	2	-	-
26	0	-	0	-	-	0	-	-	-	1	0	0	-	20	-	5	-	-
27	0	-	2	-	-	0	-	-	-	5	0	0	-	23	-	5	-	-
28	2	-	0	-	-	3	-	-	-	2	0	0	-	19	-	18	-	-
29	3	-	3	-	-	7	-	-	-	2	0	0	-	13	-	17	-	-
30	0	-	5	-	-	3	-	2	-	1	0	0	-	9	-	26	-	-
31	0	-	6	-	-	6	-	2	-	0	0	0	-	12	-	23	-	-
32	1	-	1	-	-	7	-	1	-	0	0	0	-	0	-	19	-	-
33	0	-	3	-	-	2	-	1	-	1	0	0	-	1	-	7	-	-
34	0	-	1	-	-	3	-	-	-	0	0	0	-	-	-	6	-	-
35	1	-	0	-	-	0	-	-	-	0	0	0	-	-	-	1	-	-
36	-	-	1	-	-	1	-	-	-	0	0	0	-	-	-	1	-	-
37	-	-	0	-	-	1	-	-	-	0	0	0	-	-	-	-	-	-
38	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
39	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
40	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
41	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
42	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
43	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
44	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
45	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
46	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
47	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
48	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
49	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
50	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
51	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
52	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
53	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
54	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
55	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
56	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
57	-	-	0	-	-	0	-	-	-	0	0	1	-	-	-	-	-	-
58	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
59	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
60	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
61	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	1	-
62	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
63	-	-	0	-	-	0	-	-	-	0	0	0	-	-	-	-	-	-
64	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Total	8	45	36	10	23	45	41	9	5	88	6	4	8	138	1	130	1	4

Appendix table 15 (cont'd) walleye pollock

Fork length (cm)	Haul no.								
	62	63	64	65	76	77	78	79	88
15	-	-	-	-	2	2	4	-	-
16	-	-	-	-	1	3	19	-	-
17	-	-	-	-	0	-	35	1	-
18	-	-	-	-	1	-	19	-	1
19	-	-	-	1	-	-	9	-	0
20	-	-	-	1	-	-	2	-	2
21	-	-	1	-	-	-	1	-	1
22	-	-	0	-	-	-	3	-	1
23	-	-	0	-	-	-	12	-	1
24	-	1	1	-	-	-	21	-	2
25	2	2	-	-	-	-	25	-	2
26	2	3	-	-	-	-	22	-	2
27	7	3	-	-	-	-	13	-	14
28	5	3	-	-	-	-	12	-	18
29	0	6	-	-	-	-	4	-	25
30	2	12	-	-	-	-	1	-	25
31	-	7	-	-	-	-	1	-	22
32	-	-	-	-	-	-	-	-	12
33	-	-	-	-	-	-	-	-	10
34	-	-	-	-	-	-	-	-	5
35	-	-	-	-	-	-	-	-	0
36	-	-	-	-	-	-	-	-	0
37	-	-	-	-	-	-	-	-	1
38	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-	-	-
44	-	-	-	-	-	-	-	-	-
45	-	-	-	-	-	-	-	-	-
46	-	-	-	-	-	-	-	-	-
47	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-
51	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-	-
61	-	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-	-
Total	18	37	2	2	4	5	203	1	144

Appendix table 16. Length-frequency (nos. measured), by haul, of tomcod collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984.

Fork length (cm)	Haul no.					
	5	7	27	29	30	89
15	-	-	-	2	-	-
16	-	-	-	23	-	-
17	-	-	-	45	-	2
18	-	-	-	39	-	0
19	-	-	-	24	-	0
20	-	-	-	10	-	0
21	-	-	-	3	1	1
22	-	1	-	1	4	0
23	-	0	-	7	3	0
24	-	0	-	20	-	0
25	-	0	1	21	-	1
26	-	0	-	20	-	-
27	-	0	-	5	-	-
28	-	1	-	5	-	-
29	-	-	-	3	-	-
30	-	-	-	-	-	-
31	-	-	-	-	-	-
32	1	-	-	-	-	-
Total	1	2	1	228	8	4

Appendix table 17. Length-frequency (nos. measured), by haul, of ratfish collected during F/V ARCTIC OCEAN assemblage survey, Hecate Strait, May 28-June 17, 1984. (Nos. caught in parenthesis, when > nos. measured.)

Fork length (cm)	Haul no.																		
	4	5	6	9	10	11	14	22	23	27	29	30	33	44	45	47	51	52	53
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	0	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
28	-	1	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
29	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
30	1	2	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
31	0	10	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-
32	2	12	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	0	-
33	-	13	-	-	1	-	-	-	-	-	-	-	0	-	1	-	-	0	-
34	-	12	-	-	0	-	-	-	-	-	1	-	0	-	0	-	-	0	-
35	-	17	-	1	0	-	-	-	-	-	0	1	0	-	0	-	-	0	-
36	-	13	-	4	0	-	-	-	-	-	1	1	0	1	0	-	-	0	-
37	-	26	1	1	0	-	-	-	-	-	0	0	0	1	1	-	-	0	-
38	-	19	1	1	0	1	-	-	-	-	1	1	0	0	0	-	-	0	-
39	-	19	2	3	3	0	-	-	-	1	1	0	0	1	0	-	-	0	-
40	-	10	1	7	1	0	-	-	-	0	1	0	0	1	0	-	-	0	1
41	-	9	0	4	2	0	-	-	-	0	0	0	0	1	0	-	-	0	0
42	-	7	0	3	2	1	-	-	-	0	1	0	0	0	0	-	-	0	1
43	-	2	0	6	0	0	-	-	-	0	1	0	0	0	0	-	-	0	0
44	-	6	0	8	2	0	1	-	-	0	1	0	0	0	0	1	-	0	0
45	-	6	0	6	3	0	1	-	-	0	0	0	0	0	0	0	-	0	0
46	-	0	1	6	3	1	0	-	-	0	1	0	0	1	0	1	-	0	0
47	-	1	0	4	3	1	0	-	-	0	0	1	0	-	0	0	-	0	0
48	-	1	1	10	1	0	3	-	-	0	2	0	0	-	0	1	1	0	0
49	-	1	1	8	0	0	0	-	-	0	1	3	0	-	0	-	-	0	0
50	-	-	-	6	2	1	0	-	-	0	6	1	0	-	0	-	-	0	0
51	-	-	-	10	1	0	3	-	-	0	2	2	0	-	0	-	-	1	0
52	-	-	-	10	3	0	0	-	1	0	2	1	1	-	0	-	-	-	0
53	-	-	-	4	0	0	1	1	0	1	2	2	1	-	0	-	-	-	0
54	-	-	-	9	1	0	0	-	0	-	1	2	-	-	0	-	-	-	0
55	-	-	-	11	0	2	2	-	0	-	0	0	-	-	0	-	-	-	0
56	-	-	-	11	1	1	1	-	0	-	1	1	-	-	0	-	-	-	0
57	-	-	-	12	1	1	2	-	0	-	2	0	-	-	0	-	-	-	0
58	-	-	-	11	2	0	2	-	0	-	0	1	-	-	0	-	-	-	0
59	-	-	-	16	1	0	1	-	0	-	1	0	-	-	0	-	-	-	1
60	-	-	-	18	1	2	4	-	0	-	0	0	-	-	1	-	-	-	-
61	-	-	-	12	0	1	2	-	1	-	1	2	-	-	-	-	-	-	-
62	-	-	-	21	2	0	3	-	-	-	-	2	-	-	-	-	-	-	-
63	-	-	-	29	1	1	3	-	-	-	-	3	-	-	-	-	-	-	-
64	-	-	-	15	-	0	2	-	-	-	-	0	-	-	-	-	-	-	-
65	-	-	-	10	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-
66	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	3	189	8	298 (512)	34	14	31	1	2	2	28	24	7	9	3	3	1	2	3

Appendix table 17 (cont'd) ratfish

Fork length (cm)	Haul no.																	
	62	63	64	65	66	67	70	72	75	76	77	78	79	81	83	87	88	89
20	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	0	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
24	0	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
25	0	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-
26	0	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
27	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
28	0	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-
29	0	-	1	-	-	-	-	-	1	-	0	1	-	-	-	-	-	-
30	1	-	0	-	-	-	-	-	1	-	1	1	-	-	-	-	1	-
31	0	-	0	-	-	-	-	-	0	1	2	0	-	-	-	-	4	-
32	0	-	1	-	-	-	-	-	0	0	1	2	-	-	-	-	3	-
33	0	-	1	-	-	-	-	-	1	0	2	1	-	-	-	-	3	-
34	0	-	0	-	-	-	-	-	1	0	0	1	-	-	-	-	1	-
35	0	-	0	-	-	-	-	-	0	0	0	1	-	-	-	-	1	-
36	0	-	0	-	-	-	-	-	0	0	0	0	-	-	-	-	2	-
37	0	-	0	1	-	-	-	-	0	0	0	0	-	1	-	1	0	-
38	0	-	0	0	-	-	-	-	0	0	0	0	-	1	-	0	2	-
39	0	-	0	0	-	-	-	-	0	0	0	0	-	3	-	8	1	-
40	0	-	0	0	-	-	-	-	0	0	0	0	-	1	-	6	8	-
41	0	-	0	0	-	-	-	-	0	0	0	0	-	2	-	2	5	-
42	1	-	0	0	-	-	-	-	0	0	1	0	-	1	-	0	6	-
43	0	-	0	0	-	1	-	-	0	1	1	0	-	2	-	1	8	-
44	0	-	0	0	-	0	-	-	0	0	0	0	-	1	-	2	7	-
45	1	-	0	0	-	0	-	-	0	0	0	1	-	2	-	1	8	-
46	0	-	0	0	-	0	-	-	0	0	0	0	-	1	-	1	9	-
47	0	-	0	0	-	0	-	-	0	0	0	1	-	0	-	1	5	-
48	0	-	0	0	-	0	-	-	0	0	1	0	-	0	-	1	5	-
49	0	-	0	0	-	0	-	-	0	0	2	1	-	1	-	1	4	-
50	2	-	0	0	-	0	-	-	0	0	1	0	-	0	-	1	6	-
51	1	-	0	0	-	0	-	-	0	0	0	0	-	0	-	1	5	-
52	0	-	0	0	-	0	-	-	0	0	0	0	-	1	-	1	1	-
53	0	-	0	0	-	0	-	-	0	0	0	0	-	0	-	1	1	-
54	0	-	0	0	-	0	-	-	0	0	0	0	-	0	-	1	1	-
55	0	-	0	0	-	0	-	-	0	0	0	0	-	0	-	1	1	-
56	0	-	0	0	-	0	-	-	0	0	0	0	-	0	-	1	1	-
57	1	-	0	0	-	0	-	-	0	0	0	0	-	0	-	1	1	-
58	0	-	0	0	-	0	-	1	0	0	0	0	-	0	-	1	0	-
59	1	-	0	0	-	0	-	0	0	0	0	0	-	1	-	0	3	-
60	0	-	0	0	-	0	-	0	0	0	0	0	-	0	-	0	2	-
61	0	-	0	0	-	0	-	0	0	0	0	0	-	0	-	0	1	-
62	0	-	0	0	-	0	-	1	0	0	0	0	-	0	-	0	0	-
63	0	-	0	0	-	0	-	0	0	0	0	0	-	0	-	0	1	-
64	0	-	0	1	-	0	-	0	0	0	0	0	-	0	-	0	0	-
65	0	-	0	0	-	0	-	0	0	0	0	0	-	0	-	0	0	-
66	0	-	0	0	-	0	-	0	0	0	0	0	-	0	-	0	0	-
67	0	-	0	0	-	0	-	0	0	0	0	0	-	0	-	0	0	-
68	0	-	0	0	-	0	-	0	0	0	0	0	-	0	-	0	0	-
69	0	-	0	0	-	0	-	0	0	0	0	0	-	0	-	0	0	-
70	0	-	0	0	-	0	-	0	0	0	0	0	-	0	-	0	0	-
Total	10	6	2	4	3	1	2	3	6	6	17	9	2	19	14	27	115	4

Appendix table 18. Fork length measurements, by haul, of individual specimens of curlfin sole, petrale sole, sand sole and starry flounder caught during F/V ARCTIC OCEAN assemblage survey, May 28-June 17, 1984.

Species	Curlfin sole													
Haul no.	20	23	26	29	39	44	54	55	69	70	76	77	80	86
Fork length(cm)	28	39	38	28(2)	23	26	22	42	35	28	27	19	30	37
				29(2)		27	24			31	29	29		
				31(2)		29(2)	30				30	33		
				36(3)										
				38										
				39										
				40										

Species	Petrale sole																	
Haul no.	14	20	27	33	36	43	45	46	52	53	61	65	66	67	76	77	80	88
Fork length(cm)	38	44	37	40	56	23	24	31	38	46	34	29	33	33	34	49	44	37
	40			41			28(2)	35	50	48	40	43	34	39	59	50(2)	55	39
	47						33		55		56					51		45
	59						35									54		50
							37									56(2)		
							38									57		
							43											
							46											
							48											

Species	Sand sole												Starry flounder		
Haul no.	18	20	24	25	29	41	42	49	50	54	55	86	9	29	89
Fork length(cm)	41	36	37	31	31	31	16	33(3)	22	21(2)	25	39	54	38(2)	42
			39		33	38	28	42(2)		26	34(2)			41	45
					38		29	45		33	35			43	50
					39		30	52		34	38			44	
					44		34			35(2)	41			[illegible](2)	
							38			36	48			46	
										38(2)				47	
										42				49(2)	
														51	
														53(2)	

Appendix table 19. Fork length measurements(cm) by haul, of individual specimens of Pacific halibut caught during F/V ARCTIC OCEAN assemblage survey, May 28-June 17, 1984.

Haul no.	1	2	4	6	8	9	10	11	12	13
Fork length(cm)	61	64	60	46	57	59	60	51(2)	63	38
	63	68	62	56	58	64	61(3)	52(2)	64	
	65	80	63	62	65	70	63(2)	53	66	
	66		65	63	68	71	65	54	70	
	69		68	65	78	78	66	59	78	
	70		79	67	83	87	67	61	111	
	73			68		90	69(3)	62(4)		
	74						70	64(3)		
	75(4)						72	65(2)		
	77						74	67(3)		
	78(2)						80	69(2)		
							91	71		
							95	72(3)		
								74		
								77		
								79		
								81		
								85		

Haul no.	14	15	16	17	18	19	20	22	23
Fork length(cm)	56	65	55	60	46(2)	40	47	44(2)	58
	59	69	56(3)		47	56	49	52	72
	63		57		49(2)	59	75	61	75(2)
	74		59(2)		60	61(3)	76	68	84
	76		60		62	62	77	71	92
			61(3)		65(2)	63	80	72(2)	94
			62		69	65	85	74(2)	
			64(2)		72	67(3)		77	
			66(3)		73	71(2)		79	
			68(2)		77	72(2)		88	
			69(2)		83	74			
			70		103	75			
			79			83			
			83			92			

Haul no.	24	26	29	30	31	32	33	35	36	37
Fork length(cm)	27	56	78	46	67	62	66(2)	50	63	50
	45	71	85	75		67		51	65	63
		77						55	67	74
								66(2)	73(2)	75
								67	78	77
								72(2)		82
								74		104
								80		

Appendix table 19 (cont'd) Pacific halibut

Haul no.	39	41	42	43	44	45	46	48	49	50	53	54
Fork length(cm)	78	57 83	77 89 137	61 68 71 80	55	51 70 77	54 98	70	73 88	63 88 119	76 88	84

Haul no.	55	56	57	58	60	62	63	66	68	69	70
Fork length(cm)	68 82	74 76 87	66 77	53 77 86 90	57	45 47 85	78	47	64 75	53 54 56(2) 103	54 55 62 64 68 75 76 77 81 96

Haul no.	71	77	79	80	81	82	84	85	87	88	89
Fork length(cm)	69 72 74 75 79 80	76 78 79 80 82(2) 92	116	50	51 52 57 63 69	103	50 62 68	69 72	66 78 80	64 67 69 71	83 94

Appendix table 20. Fork length measurements(cm) by haul, of individual specimens of Sebastes babcocki, S. brevispinis, S. entomelas, S. flavidus, S. melliger, S. paucispinis, and S. pinniger caught during F/V ARCTIC OCEAN assemblage survey, May 28-June 17, 1984.

Species	S. babcocki	S. brevispinis						S. entomelas	S. flavidus			
Haul no.	47	13	14	23	27	46	78	78	2	14	20	47
Fork length(cm)	52	41	41	40	50	46	41	31	34	47	42	54
		46	42			50	42(2)		35			
			43			53	45(2)		36(2)			
			46			55	47(2)		39(2)			
							48(3)		40			
							49(4)		41			
							50(4)		42(2)			
							51(5)		43(2)			
							52(7)		44(3)			
							53(3)		45			
							54(4)		46(4)			
							55(5)		47(2)			
							56(6)		48(2)			
							57(5)		49			
							58(4)		50			

Species	S. melliger									S. paucispinis					S. pinniger	
Haul no.	4	24	29	30	42	70	72	75	77	14	19	33	78	88	30	72
Fork length(cm)	43	45	29	28	41	29(2)	32	39	39	77	76	63	49	46	32	38
				43	43	30	33					65	51	51		39(2)
						31	34(4)					66	52	52(3)		40(3)
						34	35(4)					72	53	55		41(2)
						35							54	56		42(4)
													62	62(2)		43(3)
													65	64(2)		44
													66(2)	65(5)		47
													70	66(3)		
													73	67(8)		
													76	68(3)		
													77	70(3)		
													80(2)	71		
														73		
														76		
														79(2)		
														83		

Appendix table 21. Fork length measurements(cm), by haul of individual specimens of lingcod caught during F/V ARCTIC OCEAN assemblage survey, May 28-June 17, 1984.

Haul no.	1	5	6	9	16	19	20	23	24
Fork length(cm)	59 70 72 78	81 98	82 83 86	53 76 78 80	110 141	25 28(3) 29 30(2) 34 47 80 82 83	79 86 118	29	33

Haul no.	26	27	29	43	47	62	66	67	68
Fork length(cm)	31	46	28	30 33	91	57 58 68	70	60 63 66(2) 67(2) 68 71 76 82 87 88(2) 118	79 81 86 90

Haul no.	69	70	72	75	76	77	78	87
Fork length(cm)	91	81	59	77	89	75 76 77 82(2) 83(2)	94	37

Appendix table 22. Fork length measurements (cm), by haul, of individual specimens of chinook salmon, eelpout, greenling, Pacific hake, poacher, sandlance, sculpin, shiner perch, smelt, and wolfeel caught during F/V ARCTIC OCEAN assemblage survey, May 28-June 17, 1984.

Species	Chinook salmon	Eelpout				Greenling	Pacific hake	
Haul no.	12	30	47	64	65	60	51	63
Fork length (cm)	50	20 22 23	22	16	21	35	16	13

Species	Poacher									Sandlance					
Haul no.	10	11	20	23	27	31	32	51	88	41	54	56	58	69	71
Fork length (cm)	9 10 11(2) 12	18	7(2)	19	18 19	19 20	18	19	18	13 14	13	13(2) 14(3) 15(9) 16(6) 17(4)	13(5) 14(6) 15(5) 16(8) 17(3) 18(6)	14(2) 18(2)	14

Species	Sculpin			Shiner perch	Smelt					Wolfeel	
Haul no.	30	39	72	26	22	45	47	52	53	40	76
Fork length (cm)	15	9	53 62	12	5 7	13(2) 14(6) 15(18) 16(13) 17(3) 18	14 16	13 15 16(3)	15 16 18	169	147

Appendix table 23. Fork length measurements(cm) by haul, of individual specimens of Pacific herring caught during F/V ARCTIC OCEAN assemblage survey, May 28-June 17, 1984.

Haul no.	4	7	22	23	25	27	29	33	36
Fork length(cm)	25	25	19(6) 20(5) 21 22(2) 24	23 27	20	19 20 22 24	13 15 17(2) 18(2) 19 21 22 24 25 27	22(2) 23(3) 24(2)	19 21

Haul no.	45	46	47	51	52	53	66	89
Fork length(cm)	24	24	23 24	11 20(2) 21(5) 22(2) 23 24	20(3) 21 24(2)	19 23	25	20 21(3) 22 24 26

Appendix table 24. Fork length measurements(cm) by haul, of big, longnose, and unidentified skates caught during F/V ARCTIC OCEAN assemblage survey, May 28-June 17, 1984.

Species	Big skate								
Haul no.	2	3	4	6	8	10	11	15	16
Fork length(cm)	119	132	101	125	71	90	95	121	130
		142			127				

Species	Big skate								
Haul no.	17	18	27	32	35	36	40	41	49
Fork length(cm)	126	77	85	100	128	147	69	55	52
		117	125	101			83	71	77
							92	80	85
								87	98

Species	Big skate								
Haul no.	55	57	68	69	70	71	81	86	87
Fork length(cm)	149	59	80	77	72	72	90	71	80
			111	82	80		92	82	128
			113	88	83			84	
			152	105	96			89	
				116	102			100	
				118	108			108	
				119	128			120	
				125					

Species	Longnose skate			Undentified skate
Haul no.	32	36	68	25
Fork length(cm)	105	99	91	72
			108	

Appendix table 25. Total-length measurements(cm), by sex, by haul of individual specimens of spiny dogfish caught during F/V ARCTIC OCEAN assemblage survey, May 28-June 17, 1984.

Haul no. / Sex	1 U	2 F	4 M	4 F	5 F	6 F	7 F	8 F	9 F
Total length(cm)	99	97	75	79	73	105	110	106	96
	108	101	76	96	74	109			98
		105(2)	78	97	76	110			
		107		105(2)	80	113			
		108			99(2)				
		109			102(2)				
		110(2)			105				
		111			106				
		114			107				
		115			109				

Appendix table 25 (cont'd) Spiny dogfish

Haul no. / Sex	10 F	11 F	13 F	14 M	14 F	15 M	15 F	16 F	17 M	17 F
Total length(cm)	95	87	70	70	69	83	86	96	59	58
	101		76(2)		78				62	63
	102		77		79				64(2)	64
			88		85				67	67
					87				69(2)	68
					88				72	69(2)
					92				73(3)	71(2)
					100				75(2)	72
									76(2)	74(2)
									77(3)	75
									78(4)	77
									79	78
									80(2)	79(2)
									81	80
									82(3)	82
									83(3)	83
									85(3)	85
									87	86
										87(2)
										88
										89(2)
										93
										104

Appendix table 25 (cont'd) Spiny dogfish

Haul no. / Sex	18 M	18 F	20 M	22 F	23 M	23 F	24 M	24 F	27 F	29 F
Total length(cm)	70	70	88	83	61	64	57	55	74	97
	75	79		86	64	68(2)	58	58	82	104
					66	69	63	61	84	107
					68	70(2)	64	62(3)	92	
					69(3)	72(2)	65(2)	64	95	
					70	73	67(5)	65(4)	96	
					71	74	68(5)	66(6)		
					73(2)	76	69(3)	67(3)		
					74	77	71(5)	68(5)		
					75	78	72(4)	69(7)		
					76	79(3)	73(4)	70(2)		
					78	101	74(2)	71(11)		
					79		75(3)	72(5)		
					80		76(4)	73(7)		
					83		77(2)	74(4)		
							78	75		
							80	76(7)		
							82	77(2)		
							83(2)	78(3)		
							84	79(4)		
								80		
								81(2)		
								82		
								83(4)		
								84		
								87		

Appendix table 25 (cont'd) Spiny dogfish

Haul no. / Sex	30 F	31 F	33 F	35 U	36 F	41 F	42 M	42 F
Total length(cm)	98	102	96	108	93	92	78(2)	73
	100		99		95	105	80	77(3)
	109						81	78
							82	79
							84	81
							85	85
							86(2)	86(3)
							87	88
							88	92(4)
							91	93
								94(2)
								95
								97(2)
								98(4)
								100(4)
								101(3)
								102(6)
								103(4)
								104
								105
								106(2)
								107
								110(2)
								117

Appendix table 25 (cont'd) Spiny dogfish

Haul no. / Sex	43 F	45 F	46 F	47 F	48 F	49 M	49 F	50 F	51 F
Total length(cm)	88	99	74	91	103	60	62	69	82
	100		87	104		61	63	79	100
			89	113		65	64	80	102
			93(2)			66(2)	65(2)	87	
			103			67	67	90	
						68	68(2)	91	
						69	69(3)	92	
						70(2)	70(3)	93	
						71	71(3)	94	
						72(4)	72(5)	97	
						73(2)	73(6)	98	
						74(4)	74(3)	100	
						75(4)	75(4)	103	
						76(5)	76(2)	120	
						77(4)	78(2)		
						79(6)	79(2)		
						80(4)	80		
						81(7)	81(5)		
						82	82(5)		
						83(3)	83(5)		
						85	84(3)		
						87	85(3)		
						88	86(3)		
							87(2)		
							88(2)		
							89(2)		
							90(2)		
							92		
							93		
							95(2)		
							96		
							97		
							98		

Appendix table 25 (cont'd) Spiny dogfish

Haul no. / Sex	52 F	53 M	53 F	55 M	55 F	56 M	56 F	57 M	57 F
Total length(cm)	95	59	54	84	52	45	71(2)	75(2)	64
	97	61	61	85	57	65	72	82	66
		73	66		84	70	74	84	72
		81	67		90	81	78(2)	85	73(2)
		82	68		95	86	91	86	74
			69(2)		102		94	87	78(2)
			70		103		100		79
			72				101		81
			73				103		82
			74				105		84
			80				117		92
			81						
			88						
			96						
			103						

Appendix table 25 (cont'd) Spiny dogfish

Haul no. / Sex	58		60		61		62	63	64	
	M	F	M	F	M	F	F	F	M	F
Total length(cm)	68	55	63	67(2)	51	69	82	74	47	44
	69	67	78	73	79	73	107	95	63	45
	70	70(2)		78		78		100		46
	71	71		97		81				48
	74	73				89				57
	75	76(3)				91				62
	77(2)	79				92				74
	81	80				94				76
	83	81								80
		82								81
		83(2)								82
		84								85
		88								
		89								
		98								
		102								
		105								

Appendix table 25 (cont'd) Spiny dogfish

Haul no. / Sex	65 M	65 F	66 F	67 U	68 F	70 F	71 M	71 F	75 M
Total length(cm)	37	45	59	107	97	94	45	45	57
	45	46	96				51	46	80
	48	47(2)	105				52	47(2)	
	54	51					53	49(2)	
	58	54					54(4)	54	
	66	61					55(3)	55	
	67	70					56(2)	56	
		95					57	57	
		109					58	58(2)	
							59	59(2)	
							60(2)	60(2)	
							61	61(4)	
							62(4)	62	
							65(2)	63(2)	
							68(4)	64(2)	
							69(2)	65(3)	
							71	66(2)	
							73	67	
							79	68(4)	
							80	69	
							82	70(2)	
							88	71(2)	
								72(6)	
								73(2)	
								74	
								75(2)	
								76	
								77(2)	
								78	
								79	
								80	
								83	
								89	

Appendix table 25 (cont'd) Spiny dogfish

Haul no. / Sex	76 M	76 F	77 M	78 M	78 F	79 M	79 F	80 M	82 M	82 F
Total length(cm)	64	60	79	54	54	66	89	77	50	58
	65	63	81	57	57				55	66
	75	66	84	59	59				59	67
	76	76		61	62				65	69(2)
	84	78(2)		63(3)	66				66	70(2)
	86	81		64(2)	67(2)				67(3)	71
		82		65	68				68	73(2)
		84(2)		66(3)	69				71	75(2)
		90		67	70(2)				72	76
				68	72(3)				73	77(3)
				69(2)	73(3)				74(2)	78(2)
				70(4)	74(3)				75	79(2)
				71(6)	76				76	80(4)
				73	77(3)				78	81(3)
				74(4)	80				79	82(4)
				75(2)					80(2)	83
				76(4)					83(2)	84(2)
				77					84(2)	85(2)
				78(4)					85	86(2)
				79(4)					86	88
				80(5)					87	90(3)
				81(2)					88(2)	91(2)
				82						92(2)
				83(3)						93
				85						95
				86(2)						96(2)
				87						97
				88(2)						98
										100
										105(2)

Appendix table 25 (cont'd) Spiny dogfish

Haul no. / Sex	83 F	84 F	86 F	87 F	88 M	88 F	89 F
Total length(cm)	92	88	90	72	71	67	104
	100(2)	100	91	81	84	70	
	103		98(2)	84		82	
	104		106	95		87	
	105(4)			96		97	
	106					103	
	108						
	110						